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DIRECTIONS

THE FINAL REPORT OF THE ROYAL COMMISSION ON NATIONAL PASSENGER TRANSPORTATION

Volume 1

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DIRECTIONS

THE FINAL REPORT OF THE ROYAL COMMISSION ON NATIONAL PASSENGER TRANSPORTATION

Volume 1

©Minister of Supply and Services Canada 1992
Available in Canada through
your local bookseller
or by mail from
Canada Communication Group — Publishing
Ottawa, Canada K1A 0S9
Catalogue No. DSS Z1-1989/1-1992-1-2E (v. 1 and 2)
ISBN 0-660-14545-6 (v. 1 and 2)

CANADIAN CATALOGUING IN PUBLICATION DATA

Canada. Royal Commission on National Passenger Transportation

Directions: the final report of the Royal Commission on National Passenger Transportation

Issued also in French under title: Directions.
To be complete in 4 v.
Chairman: Louis D. Hyndman
ISBN 0-660-14092-6 (set of 4 v.)
ISBN 0-660-14545-6 (v. 1 and 2)
DSS cat. no. Z1-1989/1-1992E (set of 4 v.)
DSS cat. no. Z1-1989/1-1992-1-2E (v. 1 and 2)

1. Transportation — Canada — Passenger traffic. 2. Transportation — Passenger traffic — Government policy — Canada. 3. Transportation — Passenger traffic — Environmental aspects — Canada. 4. Carriers — Government policy — Canada. I. Hyndman, Louis D. II. Title. III. Title: the final report of the Royal Commission on National Passenger Transportation.

HE199.9C35 1992 388'.042'0971 C92-099717-1

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* This Table of Contents reflects the material in Volume 1 of our report. The report consists of four volumes. Volumes 1 and 2 form the main report with Volume 2 providing additional details and technical material to support the material in Volume 1. Volumes 3 and 4 consist of a selection of research studies prepared for us under contract with their authors or by Royal Commission staff. Volumes 3 and 4 will be of interest to technical experts and are not integral to understanding our report.

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Royal Commission on National Passenger Transportation

CANADA

Commission royale sur le transport des voyageurs au Canada

TO HIS EXCELLENCY
THE GOVERNOR GENERAL IN COUNCIL

MAY IT PLEASE YOUR EXCELLENCY

By Order in Council dated October 19, 1989 we were requested to inquire into and report upon a national integrated intercity passenger transportation system to meet the needs of Canada and Canadians in the 21st century and to ensure that transportation links among Canada's regions and communities are maintained and improved.

Having previously submitted an Interim Report in April 1991, we now beg to submit our Final Report in each official language.

Respectfully submitted,

Louis D. Hyndman, Q.C., Chair

Marie-Josée Drouin, Vice-Chair

Susan Fish

Marc Gaudry

John B. Hamilton, Q.C.

John F. Helliwell, O.C.

William P. Kelly, C.M.

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October 1992
Ottawa, Canada

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FOREWORD — OUR VISION

In the autumn of 1989, nine Canadians came together to face a unique challenge. Our mission: to establish guideposts for the passenger transportation system that Canadian travellers will use well into the next century and to develop sensible recommendations for the system's future.

Strangers at first, we came to blend our widely different life experiences and to merge into this report what we heard and learned from Canadians. We knew that passenger transportation was not just wheels and wings, terminals and stations. Rather, our topic was people — Canadians who want to visit friends and relatives, do business or enjoy a holiday.

Looking at the road ahead, the Commissioners thought about the unlimited horizons of our young people who increasingly travel this remarkable country. We pondered the trend of increasing numbers of seniors who pride themselves on remaining active and considered people with disabilities who also want to move about easily in terminals, and on and off airplanes, trains, buses and ferries. We shared the worries of Canadian taxpayers who, like us, want more choice, less government, top value for their travel and tax dollars and a voice in the transportation decisions that affect them.

Above all, as the Commissioners travelled extensively throughout the country and met with Canadians from all regions and all walks of life, we were impressed by the vastness and diversity of the land we call Canada and, more importantly, by the people who call it home. We believe there is something called the Canadian culture, the Canadian soul, the Canadian way of life, the Canadian vision. This Canadian uniqueness is worth preserving, whatever the difficulties.

We realize that while the transportation system no longer plays the nation-building role it once did, it nevertheless remains an important element in linking Canadians to one another.

And what about tomorrow? The Royal Commission on National Passenger Transportation has a vision for the future of Canada's transportation system and the role it will play in our daily lives. The journey begins now. . . .

The year is 2012. Canada is a respected and fully participating member of the global community. Efficient, productive and competitive, Canada's resources, products and brain-power are in demand worldwide.

Canada is envied for its sense of fairness and respect for human rights. Potential immigrants continue to look upon Canada as one of the most favoured lands of opportunity. Canada continues to rank at or near the top of the list of "quality of life" countries in the world.

The Canadian passenger transportation system is a model for the world in this year 2012. Canadians travel across the land using a system that is even safer than it was back in 1992. Sophisticated navigation systems enable planes to fly in weather that would have shut down the system back then. Car accidents and deaths have been reduced by on-board radar systems, automated traffic control, stronger but lighter car bodies — even some automatically driven cars. In some parts of the country, special car, truck and bus lanes speed up traffic and reduce congestion.

Canada has achieved an enviable balance between sensitivity to environmental damage and the other objectives of the transportation system. Responding to public opinion and efficient pricing over the last 20 years, the transportation sector now builds much cleaner cars, buses, trains, airplanes and ferries.

Half the new cars sold are electrically powered, or are hybrids using propane or natural gas with gasoline. Travellers must pay more when they travel on the few remaining carriers that still have dirty engines. Pollution costs are printed on the tickets travellers purchase, and comparisons of the amount of damage caused by each mode of travel are given wide publicity.

There have been few expropriations of land for new rights-of-way or for airports in Canada since 1992, because existing highways and terminals are used more efficiently. Agricultural land no longer disappears under asphalt and concrete.

Canadians are applauded around the globe for the priority they assign to the interests of people with disabilities. Today, in 2012, there are millions more Canadians over 60 than 20 years ago. People working in passenger transportation place priority on assisting those who have walking, vision or hearing disabilities, and terminal designs and travel announcements are user-friendly to all.

New-technology trains that pay for themselves are planned for or are in operation between Vancouver and Abbotsford, Edmonton and Calgary, and Windsor and Quebec City.

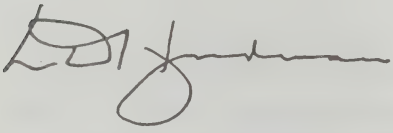
A new kind of government leadership emerged during the 1990s. Governments removed themselves from virtually all aspects of transport operations to focus on their new role as policy makers, referees and standard-setters. The government transportation staff undertaking these tasks has been reduced from 120,000 in 1992 to 20,000 today. Canadians feel they have more local control over their passenger transportation system.

Canadians also have access to the facts about their passenger transportation system and know that they can move around the country in the most efficient way, without waste or duplication. Choices abound in fares, departure times and comfort levels. Taxpayers know that the system pays for itself, while travellers know and accept that they pay for all the costs they impose upon the system when they travel. Those who do not travel know that they no longer pay taxes to support those who do. Only a few small subsidies remain; most were phased out during the 1990s. In short, Canadians have the system they want, get what they pay for and pay for what they get.

The further opening of competition brought in more airlines, more bus companies of all sizes, more alternatives on rail tracks and more ways to move over water. Terminals which also double as local shopping malls, business offices, exhibition halls and community centres are shared by different carriers and modes, and provide convenient connections to other terminals.

Equally important, taxpayers are satisfied knowing that rigorous benefit-cost studies are mandatory for all transportation project proposals and that existing roads and airports are well maintained and operate at maximum efficiency.

That is our vision for the future. It is achievable. The recommendations that follow — when applied — will bring it about.



Louis D. Hyndman, Q.C.
Chair

Autumn 1992

ACKNOWLEDGEMENTS

On presenting *Directions: The Final Report of the Royal Commission on National Passenger Transportation* to the Governor in Council of Canada, I am reminded of one of the more popular works by John Donne, in which he says: "No man is an island, entire of itself." I am, therefore, sincerely pleased for this opportunity to express my thanks to the many people who made this report possible. It is the work of many hands.

Firstly, I express my heartfelt appreciation and gratitude to my colleague Commissioners. When nine people from diverse professional and personal backgrounds are appointed to work on a common project, it is only through the utmost good faith and personal commitment that the endeavour can succeed. That diversity, good faith and personal commitment among my colleagues have made this a rewarding and rich experience for me. For their candor, their sound advice and their friendship as Canadians, I will be forever grateful. I know that they join with me now in expressing the following thanks.

The formidable challenge of assisting and supporting nine Commissioners, as well as the overall responsibility for the management of the Commission's work and inquiry operations, fell upon Dr. Janet R. Smith, the Commission's Executive Director. Her exceptional organizational and management skills kept the Commission operating smoothly at all times and gave us the freedom to devote ourselves exclusively to the inquiry at hand. We have all benefited from her extensive and incisive knowledge of the transportation sector and of government, her practical working experience and her penetrating intellect. Janet was, for me, a knowledgeable counsel and forthright confidante.

Many staff members joined the ranks of the Royal Commission on National Passenger Transportation during its three-year mandate, and we are indebted to all of them. They were frequently called

upon to go that "extra kilometre," and they always delivered on time. Their names appear in Appendix B. Some among them call for special mention.

United in loyalty and support to our mission was a professional and highly proficient senior management complement: John Sargent, Director of Research; Helen Hardy, Deputy Director of Research; Brian Johnson, Director of Policy and Planning; Denise Ommanney, Director of Public Consultation; Linda Bergeron, Director of Communications; Nina-Maria Butcher, Director of Administrative Services; and Sherry Hudon, Executive Assistant to Dr. Smith and Secretary to Senior Management Committee.

The task of recommending a transportation framework for Canada in the 21st century required counsel and advice from the leading researchers in several specialized fields, and we were fortunate to find the highest calibre of expertise in our consultants. Our sincere gratitude goes to all of those who contributed to the research program of our final report.

Since transportation systems are closely associated to countries, our mandate required us to consult with our international transportation counterparts. We needed to observe first-hand the roles that their passenger transportation systems are playing and to evaluate how the solutions advanced by other countries to concerns similar to our own might apply to the Canadian experience. These international consultations expanded and enriched the context of our final report, and we would like to express to all whom we consulted our appreciation for their willing and frank exchange of information. We also want to thank Transport Canada and External Affairs and International Trade Canada for their helpful assistance in organizing these international exchanges.

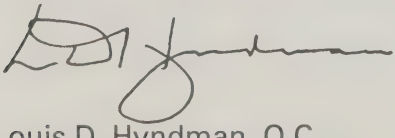
Still on the consultation front, we wish to voice our deepest gratitude to all those Canadians who came forward during the public hearings and throughout our mandate to communicate their opinions and

concerns about Canada's passenger transportation system. We heard from people with disabilities, business, labour, governments, seniors, young people and interested citizens. Commissioners were moved by the personal accounts of so many individuals who spoke and wrote to us about their experiences with the present transportation system. We were also impressed with the hope that Canadians have for a better system in the future. The best testimonial that we, as a Royal Commission, can offer these Canadians is to show them that we heard and listened to what they had to say: they will find many of their views and concerns addressed throughout the pages of this report.

The production of a comprehensive four-volume final report, especially one that deals with highly technical data, demands the finest quality of writing, revision, editing and translation. Commission staff, assisted by a team of professionals, strived to maintain not only a high quality of language and to keep the text readable for all Canadians. We thank Nadja Corkum and Claire Harrison of Astroff Corkum Ross Associates Inc. for their writing and editorial assistance with the English text, and Volker Junginger and Christine O'Meara of Tradunion Inc. for their translation and revision of the French version.

I would also like to express a personal note of thanks to Estelle Lord, my Administrative Assistant in Edmonton, for her loyal dedication and competent service.

And, finally, we acknowledge the patience of our families, who have endured our many absences from home during the work of this Royal Commission. Because of their support and understanding, we ask that they share in our pride and accomplishment.



Louis D. Hyndman, Q.C.
Chair

Autumn 1992

CHAPTER 1

POINT OF DEPARTURE

SETTING THE STAGE

In October 1989, the Government of Canada asked us to "inquire into and report upon a national integrated intercity passenger transportation system to meet the needs of Canada and Canadians in the 21st century."[1]

CHANGES IN THE WORLD COMMUNITY

During the three years of our mandate, we have witnessed unexpected and often dramatic changes in Canada and other countries. When we began our task in 1989, the great changes that have since swept Central and Eastern Europe and the subsequent redrawing of the political map had yet to occur. In Canada, the Meech Lake Accord appeared to be on its way to ratification. The Free Trade Agreement with the United States had been approved months earlier, and the North American economies were strong and growing.

Today, the U.S.S.R. is gone, and its successor states and the countries of Eastern Europe are struggling toward market economies. The General Agreement on Tariffs and Trade (GATT) is being challenged by the failure of its members to deal with the increasing competitiveness of modern economies in a wide array of sectors, from agriculture to intellectual property to services in general. The North American economies are battling a lengthy recession compounded by major economic restructuring. At the time of writing, Canadians are assessing, in a fundamental way, the nature of their country — by redefining national institutions and rethinking their approach to federalism.

Transportation around the world is also undergoing major change. Rail traffic in Eastern Europe has decreased as car sales have increased. The world's airlines have been hurt by recession and

the 1991 Gulf War — many failed, others merged or were sold. Growing environmental problems are prompting increased public awareness of the need for global action in transportation and other sectors. The benefits of loosening government controls over the delivery of services are resulting in new approaches to meeting travellers' needs. Many countries are trying new ways to finance transportation infrastructure privately and to privatize government transportation services. We believe that this rapid pace of change will continue. Canadians cannot ignore these changes in other parts of the world, and the challenges that they present.

WHY IT IS IMPORTANT TO MAKE THE RIGHT PASSENGER TRANSPORTATION DECISIONS

In total, Canadians in 1989 devoted substantially more resources to transportation than they did to health care — equivalent to 16 percent of gross domestic product (GDP) compared with 9 percent of GDP, respectively. Resources used to provide intercity passenger transportation accounted for 30 percent to 40 percent of total resources devoted to transportation, or 5 percent to 7 percent of GDP (depending on how extensively "intercity" travel is defined, particularly travel by private car).[2] This is an annual expenditure of $30 billion to $45 billion or $1,100 to $1,700 per Canadian. As the economies of nations become more and more interdependent, the choices that Canadians make about passenger transportation projects and investment will affect Canada's economic success in the global marketplace.

Revolutions in communications technology are changing the way businesses operate and are encouraging globalization of markets.[3] For example, the production, marketing and financial systems of large multinational corporations are increasingly integrated on a global basis. In the future, the quality of life in all countries will depend on their ability to adjust to a world in which there are fewer national barriers to the movement of capital, labour, goods and services.

Many sectors of the Canadian economy, such as the tourism industry and manufacturers who sell goods and services abroad, depend on the transportation system to provide cost-effective service so that they, in turn, can better serve their customers. Passenger transportation companies must look for ways to improve services and lower prices.

PUBLIC CONCERNS OVER PASSENGER TRANSPORTATION

On most trips taken, no matter by which mode, the taxpayer is often an unwitting partner. Travellers want more and improved passenger transportation services, but taxpayers are increasingly reluctant to bear the consequent financial burden. Some Canadians travel frequently and use the passenger transportation system extensively. Others travel seldom, or not at all, yet their taxes help pay for those who do travel. Even if current budgetary pressures abate, the public will continue to pressure the government to spend wisely — by maintaining the passenger transportation system when funds are limited and not over-building it when funds are plentiful.

Concerns about how transportation affects the environment have moved to the fore. Transportation leads to traffic congestion, causes air and noise pollution, and consumes land for roads, airports and parking lots. As Canadians become more aware of the impact of transportation on human health and the long-term well-being of the planet, environmental issues are becoming a more important factor in passenger transportation decisions. Governments at all levels face growing public pressure to regulate the transportation sector for greater protection of the environment.

Our Activities

In the course of our three-year mandate we consulted with Canadians, studied passenger transportation in other countries and undertook a research program.

CONSULTING WITH CANADIANS

Through public hearings, written submissions, toll-free telephone lines and consultations, we listened to Canadians who have an interest in passenger transportation. These included travellers and providers of transportation infrastructure and services, as well as governments, taxpayers, unions and regulators.[4] We wanted to understand the needs and aspirations of travellers, to ascertain the concerns of those who provide passenger transportation infrastructure and services, and to identify the issues and problems.

STUDYING PASSENGER TRANSPORTATION IN OTHER COUNTRIES

We also looked at how other countries are dealing with passenger transportation issues. Rapid political and economic change is affecting many nations, and we discovered that Canada is not alone in questioning the traditional ways of making passenger transportation policy and investment decisions, nor in seeking new ways to resolve transportation issues. Governments around the world are exploring ways to improve the efficiency of their transportation systems.

Several countries have recently undertaken major transportation studies, and some are already putting recommendations into practice. The United States, Switzerland, Sweden, and The Netherlands are approaching transportation issues from a broad perspective. They have developed, and are beginning to implement, long-term strategies that deal comprehensively with the issues in all transportation modes.[5] Other countries have undertaken studies that focus on specific problems and modes. Australia and Germany have examined escalating deficits and other issues in the rail sector.[6] Australia has been studying, and changing, road user-charges and air transportation regulation. New Zealand has made major changes in the way it provides roads and charges road users.

Many countries have relaxed government controls and economic regulation over their passenger transportation carriers. The United States, Australia, New Zealand and the United Kingdom view

transportation less as an instrument of public policy and more as an economic activity that can benefit from the tests, economic discipline, creativity and incentives of the market. Many countries are studying ways of setting prices that reflect the costs of transportation services and infrastructure:

- In the United States, a government report is explicit about the need to "assure that transportation users bear the maximum practical and appropriate share of the costs of services and facilities they use."[7]
- In Sweden, legislation emphasizes that transportation prices to travellers must include the costs of pollution, congestion and traffic accidents.[8]
- In Norway, an extensive toll system exists around Oslo city centre, and drivers using downtown streets must pay a charge that is intended to discourage city driving.
- In Singapore, city traffic is controlled through an area licensing scheme. Authorities auction limited numbers of special licences that all vehicles must have when entering and operating within the restricted zone.

Several countries are experimenting with alternative transportation ownership and administrative arrangements:

- In 1986, the Australian government transferred the responsibility for planning and operating the country's major airports to a Federal Airport Corporation.
- New Zealand established Transit New Zealand — a quasi-autonomous authority — to manage its roads, and the revenues from road-user charges were earmarked to cover the expenditures of the road authority.
- In 1987, the United Kingdom privatized its main airports, transforming the government-owned British Airports Authority into a private-sector company.

- In France, Italy and Spain, extensive systems of toll highways operate under private or mixed private-public ownership.
- Germany and the United Kingdom have announced plans to privatize their government-owned railway companies.
- A number of other countries are inviting private firms to participate in the development, financing, construction, maintenance and operation of roads, bridges and tunnels, such as the Channel Tunnel between the United Kingdom and France.

RESEARCHING INTERCITY PASSENGER TRANSPORTATION IN CANADA

Through our research program, we examined many aspects of intercity passenger transportation: how and where Canadians travel, the costs and who pays them, the safety of each mode, and the extent to which transportation affects the environment. We continued throughout our mandate to consult with travellers, providers of passenger transportation infrastructure and services, government officials and experts in Canada and abroad. We used our research and consultations to sharpen our understanding of the issues.

We concluded that the way the transportation system in Canada is managed is no longer adequate, for the following reasons:

- Governments often make passenger transportation decisions based on conflicting objectives.
- Although some travellers pay fully for their transportation, most travellers do not, and in no mode of travel are costs fully covered by fares, licences and fees paid by those who use the mode.
- Individual carriers face different rules and regulations. For some carriers, competition is the driving force; others operate as monopolies.
- Prices rarely reflect the costs of a traveller's use of the transportation system. As a result, travellers from well-used parts of the system help pay for parts that are used less often.

- Passenger transportation costs are sometimes higher than necessary because governments have not always invested in projects that yielded the highest positive return.
- Governments, industry and travellers rarely give full weight to the environmental and other social costs of transportation.
- Taxpayers do not have enough information about why particular decisions are made, or how their tax dollars are spent.

Our Approach

We have taken a long-range, comprehensive view of the passenger transportation system. Our program of study, consultation and research gave us a unique opportunity to step back from current day-to-day issues and view the passenger transportation system through a wider lens than that used by those who must deal daily with transportation problems. We want to help resolve not only today's issues and problems, but those of tomorrow as well.

OUR METHOD

From the start, we wrestled with two ways of accomplishing our task. One method was to address, individually, the hundreds of problems facing today's passenger transportation system. We could have approached our task by listing the current passenger transportation issues, attempting to resolve them, and then looking for consistency and coherence in our solutions.[9] But we believe this method alone would fail, because such solutions would not be based on a long-term goal nor on clear objectives. The result would likely be passenger transportation recommendations that were inconsistent, short-term and wasteful.

The second method was to develop a long-term passenger transportation framework. We believe that the framework (the laws, regulations and institutions that govern transportation) must be developed by setting a goal and developing objectives that Canadians agree upon.

With a guiding framework in place, future passenger transportation decisions will be coherent, consistent and less expensive after all costs paid by all parties are taken into account.

OUR DIRECTIONS

The directions that we recommend in this report, when followed, will not just mirror but will be in the forefront of the evolution of passenger transportation policy worldwide. Our recommendations will result in:

- a passenger transportation system that is safe;
- a passenger transportation system that protects the environment;
- a fairer passenger transportation system in which the costs would be paid by the people who benefit;
- a less expensive system where all costs are taken into account, with services better matched to traveller demand; and
- lower general taxes, resulting from lower total costs and the transfer of costs from the taxpayer to the traveller.

OUR GUIDING PHILOSOPHY

We looked at two possible underpinnings for a passenger transportation framework — a subsidized transportation system and a traveller-funded transportation system.

Subsidized transportation results in lower prices for the traveller but higher taxes for citizens, whether they travel or not. We considered this option carefully, because it is similar to those used by governments in the past. For example, building the Canadian Pacific Railway (CPR) in the 1880s and developing the airline industry in the 1940s involved taxpayer expenditure. Today, however, transportation systems are reasonably well developed, and governments and

industry must spend more on maintenance of the existing system than on new infrastructure. What was appropriate for a system in the process of development is not appropriate for one that is mature.

Some Canadians who spoke with us argued that a transportation system massively supported by the general taxpayer would make Canada more competitive internationally by lowering the costs of transportation as part of doing business. We found, however, that heavily subsidized transportation in other countries resulted in skewed business investments and activities, and inefficient, uncompetitive economies. For example, transportation in Eastern Europe and South America was, until recently, heavily subsidized, with no real improvement in prosperity and productivity. Even countries in the European Community are now assessing the results of large subsidies to their rail systems.

We believe that, unless our transportation system is made efficient now, Canadians will pay dearly later for the adjustments needed to survive in the global marketplace. We have chosen to build a framework on the basic philosophy that transportation should be provided through a system supported and maintained by its users and not through government departments and central controls. We see the transportation sector as requiring a different approach from such government-supported and controlled sectors as health and education, and relate it more closely to providers of services such as telecommunications and electric power. Transportation would lose its tax-supported base and transportation infrastructure and services would be provided according to the willingness of travellers to pay for them.

THE PAST AND THE FUTURE

The passenger transportation policies of the future would not mirror those of the past. In particular:

- In the past, government has regulated the economic aspects of passenger transportation systems and has provided much of the infrastructure. We believe these systems should be open and accessible, and that government should confine its role to being a referee and policy setter.
- In the past, jurisdiction over passenger transportation has often been divided in an inconsistent and contradictory way among levels of government. We believe that responsibilities should be assigned to the lowest level of government that can efficiently handle them, be that municipal, regional, territorial, provincial or federal, or a combination of these.
- In the past, the passenger transportation system has depended on funding from taxpayers whether they travel a little, a lot, or not at all. We believe that the passenger transportation system is now sufficiently mature to be self-sustaining, so that travellers should pay for what they get and get what they pay for.
- In the past, governments have made passenger transportation decisions without sufficient accountability to those who pay taxes or user fees. We believe that passenger transportation decisions should be visible and understandable and that all costs should be made public. The transportation system should be transparent in its accounts and accountable in its decision making.

We recognize that moving the transportation system out of government control right away would have major implications for industry and travellers. We therefore suggest transition periods to allow the passenger transportation system to adjust to being more autonomous, more accountable, more economically viable and more protective of the environment. These transition periods should be short and must not be an excuse for inaction or delay in the implementation of our recommendations.

Moving Forward

In the chapters that follow, we develop a passenger transportation framework for the future and make recommendations that implement it. We have organized this Report as follows:

- Chapter 2 presents a view of the Canadian passenger transportation system — past, present and future.
- Chapter 3 looks at the costs of the current passenger transportation system and who pays the costs.
- Chapter 4 discusses the principles underlying our framework. We make recommendations on a goal and on objectives for the passenger transportation system. We discuss the implications for governments, travellers, taxpayers, carriers, and providers of infrastructure. We also address transition mechanisms.
- Chapters 5 to 15 apply our principles to the existing passenger transportation system, addressing environmental, safety and accessibility issues, and analyzing the implications of our principles for each of the different modes.
- Chapters 16 and 17 address special transportation concerns — accountability, transparency and international issues.
- Chapter 18 examines changes in who will benefit from the new framework and who will pay.
- Chapter 19 summarizes the changes in legislation, regulations and institutions necessary to implement the framework and describes how these changes will meet our objectives.

We sought — and believe we found — Canadian solutions to Canadian problems. These proposals will lead to a significantly improved passenger transportation system that will encourage competition, creativity and technological change, will give most Canadian travellers the widest array of choices, and will ensure that non-travelling Canadians do not have to pay the bill for those who do.

ENDNOTES

1. See Appendix A, Volume 1 for full Terms of Reference.

2. These figures correspond to comprehensive measures of the resources used to provide transportation, health, and intercity passenger transportation. In the case of transportation, they include both services used directly by consumers and governments, and services that are used by businesses to produce non-transportation goods and services. Our measure covers transportation services provided by commercial carriers (indicated by their revenues), and transportation "produced directly" by the user. Private purchases of cars and car operating expenses are used as an indicator of the personal component of direct production. The costs of government-provided transportation infrastructure (not already reflected in charges to travellers included in carrier revenues) are included in the operating costs of those providing their own transportation services.

   The low end of the estimated range of resources devoted to intercity travel defines "intercity" trips as trips longer than 80 kilometres in one-way distance. The high end of the range defines intercity trips as all trips by air, rail (excluding urban transit), intercity bus, ferry (apart from urban and short river crossing ferries) and all car travel on provincial highways. When comparing the roles of the different means of transportation, especially in chapters 2 and 10, we are guided by the narrower definition. In chapters 3 and 18, where an important element is the costs of different types of infrastructure, we use the wider definition.

   A different approach to measuring the "size of the transportation sector" is to include only the value added of transportation carrier industries, which is, for all transportation (freight and passenger, urban and intercity), about 4 percent of GDP. By comparison, the value added in the health care services, hospital and pharmaceutical industries is 7 percent of GDP.

   For a more complete discussion, see Notes to Chapter 1 and Notes to Chapter 2 in Volume 2 of this report.

3. Over the past two decades, the volume of world merchandise trade has been growing more rapidly than that of world output. And, during the 1980s, world outflow of foreign direct investment grew much more rapidly than world merchandise trade. Source: Economic Council of Canada, *Pulling Together: Productivity, Innovation and Trade* (Ottawa: Supply and Services Canada, 1992).

4. For a full discussion of what Canadians told us, see Chapter V of *Getting There: The Interim Report of the Royal Commission on National Passenger Transportation* (Ottawa: Supply and Services Canada, 1991).

5. The Swiss government created the 62-member Federal Commission for a Swiss Integral Concept of Transport in 1972, whose report — *Rapport Final sur les travaux de la Commission féderale de la conception globale Suisse des transport* — was published in 1977. Sweden published its *Transport Policy for the 90s* in 1988. The United States released its major transportation review, *Moving America*, in 1990. The Netherlands developed its *Second Transport Structure Plan* in 1990.

6. The report of Australia's Industry Commission, entitled *Rail Transport*, was released in October 1991, roughly at the same time as that of the Government Commission on German Railways.

7. The U.S. policy statement is found in *Moving America*, p. 56.

8. *The Transportation Act, 1979* and *Transportation Act, 1988*.

9. See *Getting There: The Interim Report of the Royal Commission on National Passenger Transportation*, pp. 159-162 (Ottawa: Supply and Services Canada, 1991).

CHAPTER 2

CANADIAN PERSPECTIVES: PAST, PRESENT AND FUTURE

Introduction

Our inquiry is timely. The world is changing and Canada is changing with it. These changes present opportunities and challenges to those who will be making transportation decisions today and for the future. We firmly believe that our recommendations will help them choose well.

How can Canada take advantage of these opportunities and meet the challenges? Some guidance is found by examining the historical forces that shaped Canada's passenger transportation system, and by studying the current trends that will affect the transportation system in the future. Therefore, in this chapter, we examine the past, describe the passenger transportation system of today, and explore the possibilities for the passenger transportation system of tomorrow.

An Historical Perspective

Early colonists used lakes and rivers as natural highways into the interior of the country. In the 18th century, the earliest forms of water transportation, such as canoes, were supplemented for commercial purposes with schooners and flat-bottomed boats. Early in the 19th century, the introduction of the steamship brought formalized, mostly privately owned, marine passenger transportation with regular schedules, set fares and different classes of accommodation.

From the 19th century to the middle of the 20th century, governments and industry built the transportation infrastructure that was needed to support Canada's developing economy. As new forms of transportation were introduced, new types of infrastructure were developed:

- In the 19th century, the Welland, Lachine and Rideau canals were constructed, and thousands of miles of railway track were laid.
- By 1885, the first transcontinental railway was completed. The laying of railway tracks continued at a rapid pace into the second decade of the 20th century.
- In the 1920s, the popularity of the car spurred the development of roads. Road building continued for several decades, including the construction of the Trans-Canada Highway from 1949 to 1965.
- Also in the 1920s, commercial air services were introduced. In the 1950s, their growth led to the development of new airports, and the modernization of air navigation and air traffic control systems.

PAST ROLES OF GOVERNMENT

Early in Canada's history, governments considered the building of canals and laying of railway tracks to be private-sector enterprises. Many large-scale projects, however, turned out to be expensive and not commercially viable. Gradually, governments became involved in the financing, ownership and management of transportation infrastructure and services. Governments often stepped in with financial assistance in the form of subsidies, loans and loan guarantees to make the projects viable for private-sector investors.

Public support assisted the Canadian Pacific Railway Company (CP) in constructing the transcontinental railway. To attract a private syndicate to undertake construction, the federal government offered land grants of 25 million acres (10 million hectares), a cash subsidy of $25 million (equivalent in today's dollars to 15 to 20 times this much or $350 million to $500 million), and a series of privileges (including the promise of a 20-year monopoly on traffic in the area between the main line and the U.S. border). With government support, a successful railway company developed that still operates today.

Despite government financial assistance, the private sector often failed. Government had to assume ownership of the privately owned Welland and Lachine canals to keep these services operating. Also,

many private railway companies overextended themselves. In 1919, the federal government consolidated many of these railways under the control of the Canadian National Railway Company (CN).

Provincial governments began to invest in road development in the 1920s, and road building continued through make-work projects during the Depression of the 1930s. Following World War II, a surge in car sales and the growth in truck transportation led to pressures for more road paving and modernization. During this period, road construction and maintenance became a major area of spending by provincial governments.

Federal government involvement in transportation increased during World War II as the development of air services was added to the earlier roles in marine and rail services. After the war, the federal government played a major role in the financing of air infrastructure by building airports, expanding the air navigation system and assuming ownership of many airports. Between 1951 and 1961, federal capital spending on air services increased nearly ninefold. The federal and provincial governments also participated jointly, for the first and only time in a major transportation project, in the construction of the Trans-Canada Highway.

Governments also controlled passenger transportation carriers. Throughout this period of expansion, federal regulations governed air and rail carriers and provincial or territorial regulations governed car, truck and bus operators. These regulations controlled almost every economic aspect of passenger transportation, including starting a business in the industry, choosing routes, setting fares and establishing standards for service.

By regulating the industry, by owning carriers (such as CN and its subsidiary, Trans-Canada Airlines, established in 1937) or by combining ownership and regulation, governments used transportation services to further various public policy objectives. They believed that the profits generated in some passenger transportation markets should subsidize other, unprofitable markets.

CHANGING ROLES OF GOVERNMENT

By the early 1960s, governments began to study the effects of early transportation policies. During the 19th and early 20th centuries, the focus was on developing and building Canada's transportation system. By 1960, governments began to examine the transportation system in a different way. Although there were still areas where they felt new government investment was required to expand and upgrade infrastructure, the main modes and routes of transportation were now well established and the passenger transportation system had matured.

In 1961, the MacPherson Royal Commission on Transportation reported on the freight railway transportation system. It criticized government policies that hampered the railways' abilities to compete with other modes in the transportation of freight. Although the MacPherson Royal Commission's range of study was narrow, its conclusions had implications for transportation well beyond that of the freight railway system. Its findings influenced the 1967 *National Transportation Act* (NTA), the first federal transportation law that encompassed all modes of transportation. The new Act emphasized the need for competition between the air, rail, truck and bus modes to help achieve an "economic, efficient and adequate transport system."[1]

While the 1967 NTA promoted competition among modes, it did not eliminate economic regulatory restrictions on competition within modes. Air and water carriers, along with rail, truck and bus operators, were still subject to strict economic regulation.

In the 1970s and early 1980s, governments came under increasing pressure to relax many of these economic controls. The United States substantially reduced economic regulation in its transportation sector, and Canadian travellers and shippers pushed for reforms that would provide them with the same low costs as those experienced by users of the transportation system in the United States.

In response, the Government of Canada introduced a number of reforms in the late 1970s and early 1980s, and enacted the *National Transportation Act, 1987* (NTA, 1987). This Act declared that "a safe, economic, efficient and adequate" system is most likely to be achieved when "all carriers are able to compete both within and among the various modes of transportation." The major impact of this legislation on passenger services was on one mode only; it virtually eliminated entry, exit and price controls on the domestic airline industry. In addition, the federal government privatized Air Canada in 1988 and 1989.

The federal government also enacted the *Motor Vehicle Transport Act, 1987*, which resulted in a gradual dismantling of provincial regulatory controls over the trucking industry. Provincial governments continue to regulate intercity passenger buses, although New Brunswick and Prince Edward Island have recently eased entry requirements, and Alberta has opened entry to charter bus operations to anyone who can meet a minimal "fit, willing and able" test.

Many of the recommendations of the 1961 MacPherson Royal Commission, which emphasized the need for governments to repeal regulations and allow more competition in transportation, were implemented over 30 years.

Canada's Passenger Transportation System Today

Intercity passenger transportation today is big business. We estimate that, in 1989, spending on intercity passenger transportation by Canadian travellers and taxpayers was in the $30 billion to $45 billion range, (depending on how extensively "intercity" is defined, especially as regards travel by car[2]). This figure includes passenger services on intercity carriers, the intercity portion of car use including car purchase costs, and the portion of government spending on the infrastructure component of the system.

Intercity passenger transportation provides employment to many Canadians. In 1991, intercity passenger carriers employed some 70,000 people and many more Canadians worked on related aspects of the transportation system. For example, they constructed and maintained roads, airports, and the air navigation system; they built and serviced cars, trucks and buses; and they produced and sold the oil, gas and parts used by the transportation sector. Governments, at all levels, are major employers in the system, as owners and providers of transportation infrastructure and services. They also employ smaller numbers of people in regulatory and policy functions. For example, Transport Canada employs approximately 21,000 people, and all governments — federal, provincial, territorial and municipal — employ approximately 100,000 in transportation and communications.[3]

Intercity passenger transportation is a complex system of interrelated components. Passenger transportation consists of the road, air, rail, and water modes of travel. It can be divided into two components:

- carriers that provide bus, airplane, train and ferry services together with privately owned passenger vehicles — cars, light trucks and vans (for ease in this report we refer to these vehicles as cars); and
- infrastructure that consists of the terminals where carriers start and stop, the "links" over which carriers operate, and the traffic control systems that direct the behaviour of carriers.

Table 2-1 illustrates the components of the transportation system.

The intercity passenger transportation system is connected to urban transportation systems and there is no clear boundary between traffic that occurs between cities and that which takes place within cities. It is also often the same system that carries freight.

Table 2-1
COMPONENTS OF THE TRANSPORTATION SYSTEM

Mode	Carrier	Infrastructure		
		Terminals	Links	Traffic control
Road	Cars	Car parking	Roads (including bridges)	Police, road signs and signals, traffic control laws and regulations
	Buses	Bus terminals		
Air	Airplanes	Airports (including runways)	Air navigation systems	Air traffic control
Rail	Trains	Stations	Railway tracks	Dispatch, signal systems
Water	Ferries	Ferry terminals (including wharves and ferry slips)	Waterways and canals (including navigational aids)	Vessel traffic services

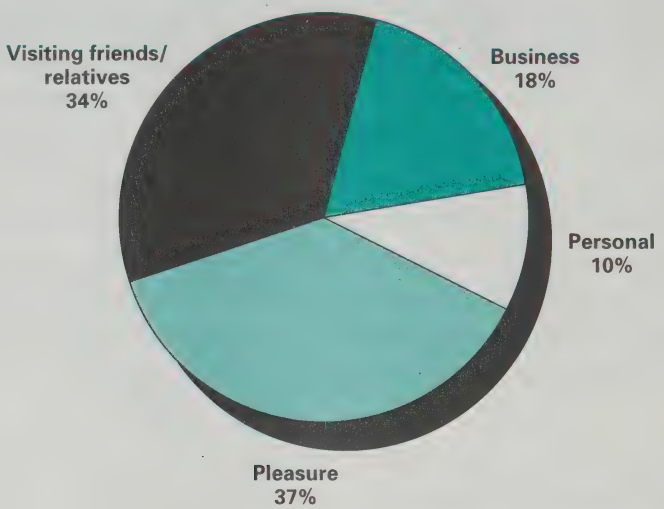
WHY CANADIANS TRAVEL

Intercity passenger transportation is an important part of Canadian life. Passenger transportation enables Canadians to pursue private and business goals. It connects region to region and city to city, providing people with the opportunity to meet for business, visit friends and family, or expand their horizons. In 1990, Canadians took over 150 million intercity trips, of which 134 million were within Canada, an average of five trips per Canadian.[4]

Most Canadians who travel do so for vacations, sightseeing and to visit friends and relatives. Business travel accounts for a small share of intercity travel within Canada (Chart 2-1).

Most intercity trips in Canada are over short and medium distances and occur within, rather than between, provinces or territories. In 1990, 76 percent of trips taken were between 80 and 320 kilometres one way (Charts 2-2 and 2-3). However, one-way trips over 320 kilometres account for over 60 percent of passenger-kilometres travelled.

Chart 2-1
Domestic Intercity Travel by Main Purpose of Trip, 1990



Total: 133.8 million person-trips

Source: Statistics Canada, *Touriscope: Domestic Travel 1990*, Catalogue No. 87-504, October 1991, p. 27.

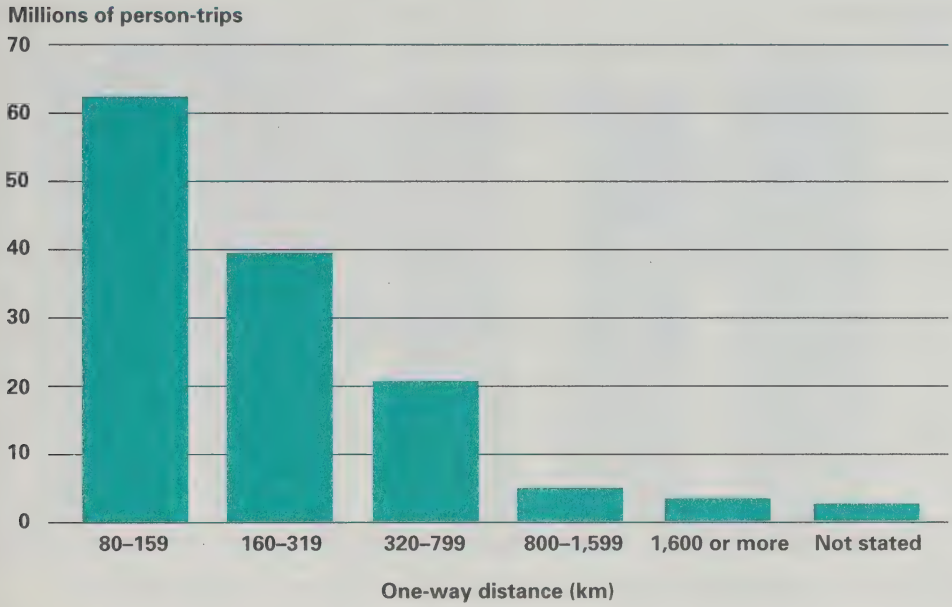
Note: Total person-trips include a "not-stated" category.

HOW CANADIANS TRAVEL

The car is the favourite mode of intercity travel for Canadians, as well as for citizens of all the other developed Western countries. In 1990, around 80 percent of all domestic intercity[5] passenger-kilometres travelled in Canada were by car. Although the car is used for only a small proportion of trips over 3,200 kilometres, it is the most popular means of travel in all other distance categories (Chart 2-3).

For Canadians, the car is also the most popular means of international travel (mostly to the United States), although 35 percent of all international trips are by air (Chart 2-4). International car travel is popular because the United States is, by far, the chosen destination

Chart 2-2
Domestic Intercity Travel by Distance of Trip (One-Way), 1990

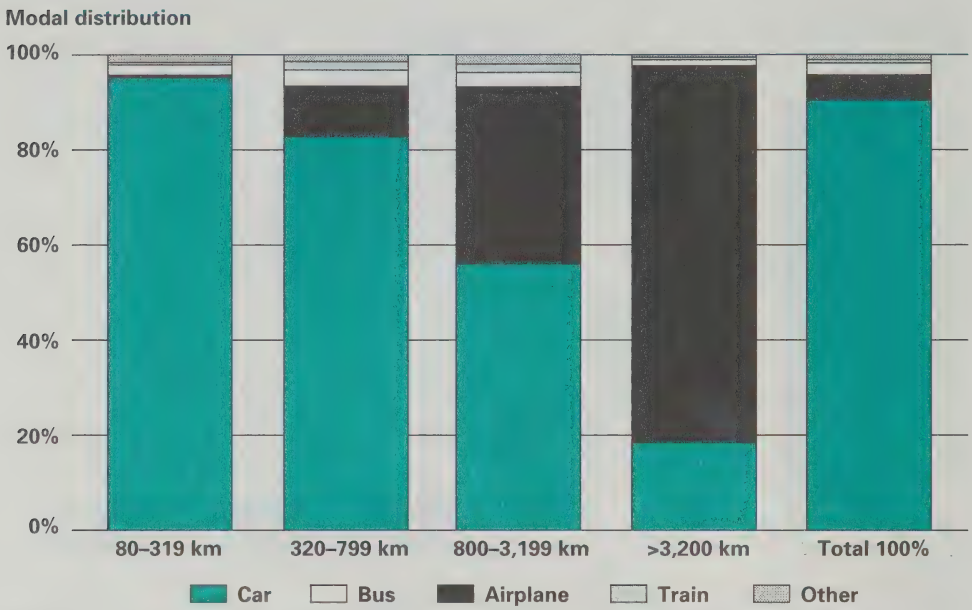


Source: Statistics Canada, *Touriscope: Domestic Travel 1990*, Catalogue No. 87-504, October 1991, p. 27.

of Canadians travelling outside the country. In 1990, 85 percent of all international trips taken by Canadians were to the United States. As with domestic travel, most international travel by Canadians is for vacations and to visit friends and relatives, rather than for business.

In terms of ways to travel, Canadians' choices have remained rather stable over time. As Chart 2-5 shows, the car has been the dominant mode of passenger transportation since 1930, except during World War II. Airplane travel has grown in importance since its beginning in the 1930s, and has become the dominant public mode of travel. The relative importance of bus and train travel has declined over the last 50 years.

Chart 2-3
Domestic Intercity Travel by Mode and Trip Length, 1990



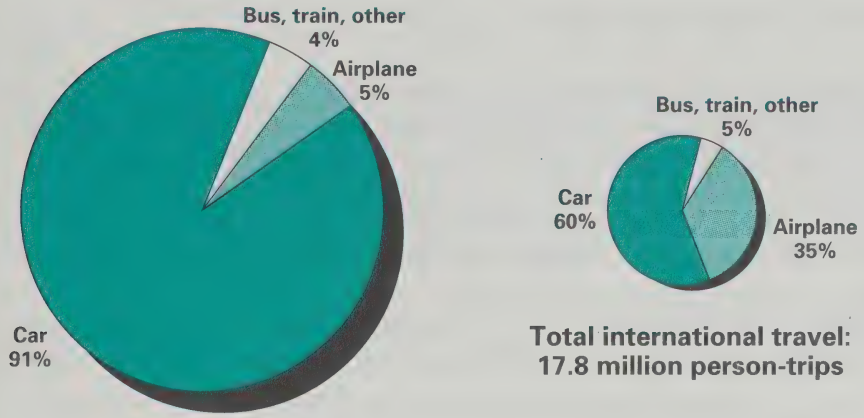
Source: Unpublished data from Statistics Canada's Canadian Travel Survey.

Note: "Other" category includes boat, motorcycle, bicycle, and means not specified by survey respondent.

Canadian travel patterns differ from those of some countries but not in the strong attachment Canadians have for cars. As shown by the international comparative data in Chart 2-6 and Table 2-2, the car is now almost as important a mode of transportation in the United Kingdom and (the former West) Germany as it has been in Canada and the United States for decades. In France and Italy, the car is also the dominant mode. In all these countries, car use has increased

Chart 2-4

Domestic and International Intercity Travel by Primary Mode, 1990

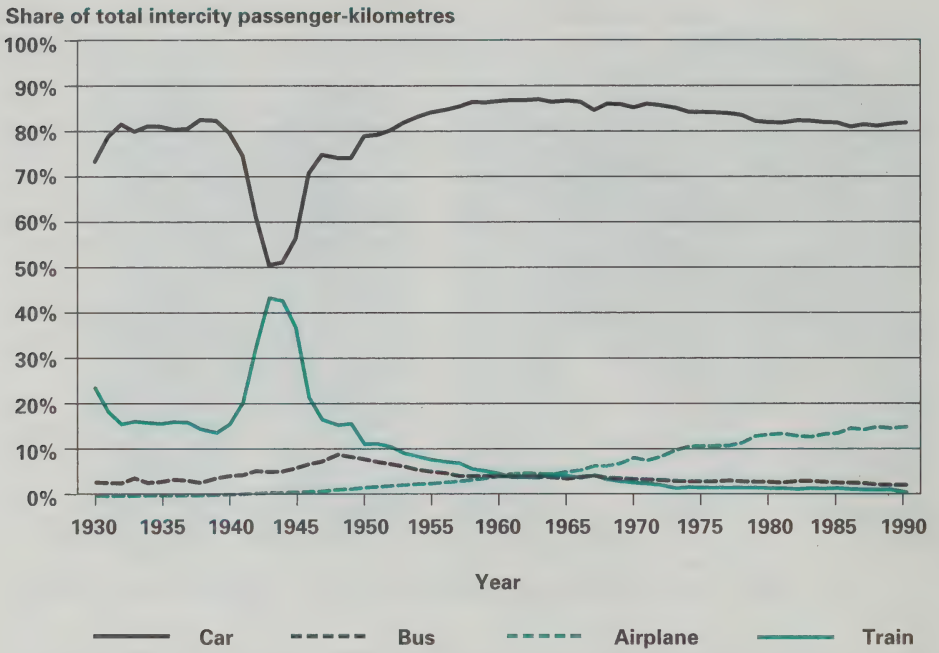


Sources: Domestic travel: Statistics Canada, Touriscope: Domestic Travel 1990, Catalogue No. 87-504, October 1991, p. 27.
International travel: unpublished figures from Statistics Canada's Canadian Travel Survey.

Note: "Other" category includes boat, motorcycle, bicycle, and means not specified by survey respondent.

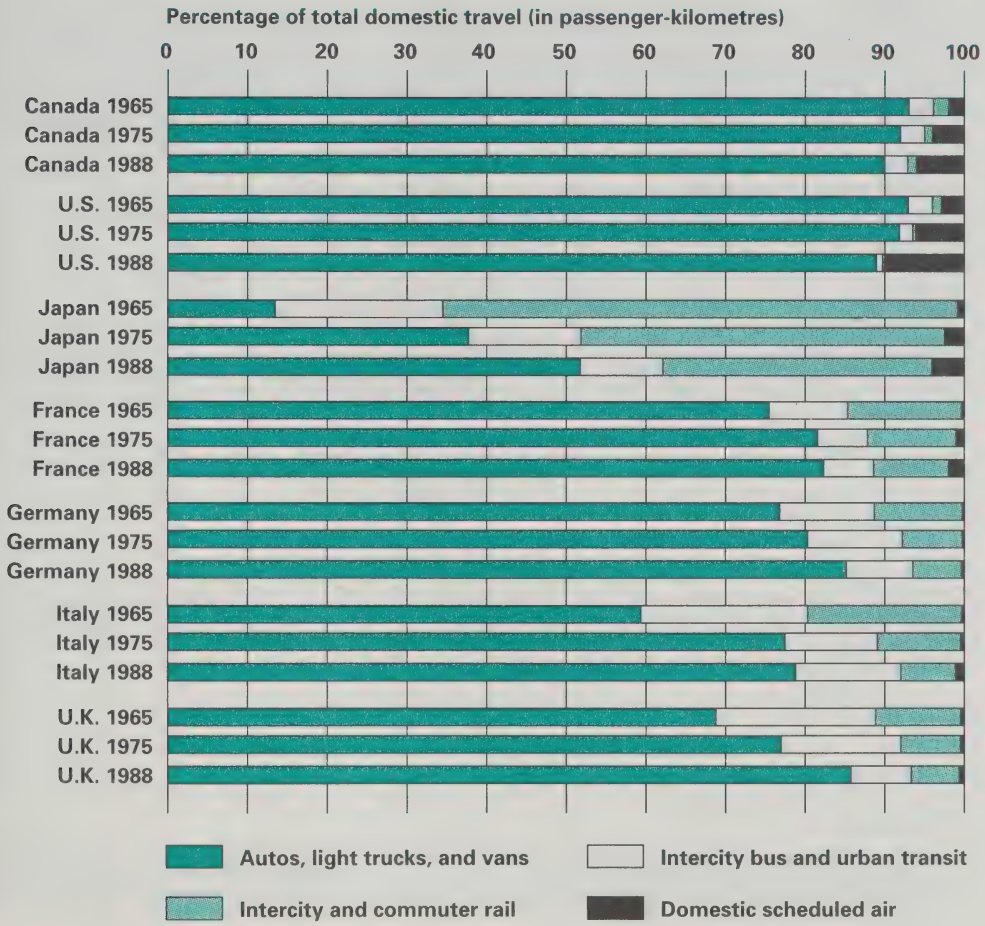
appreciably over the past quarter of a century. In Japan, car use is also growing, although train travel continues to be more important than in Canada and the United States. Train travel also continues to play a somewhat larger role in Western Europe. Most countries, however, are experiencing the same long-term decrease in the importance of the bus and train travel that has been observed in Canada. Airplane travel, by contrast, has increased its share of passenger travel everywhere — most markedly in the United States. The increased importance of airplane travel would be even more apparent for a number of other countries if international travel were included in the data.

Chart 2-5
Changes in Modal Share of Domestic Intercity Passenger Transportation, 1930–1990



Sources: Statistics Canada and Royal Commission staff calculations. For details, see Notes to Chapter 2 in Volume 2 of this report.

Chart 2-6
International Comparisons of Modal Shares in Total Domestic Travel, 1965, 1975 and 1988



Sources: Royal Commission staff calculations based on data from Statistics Canada, the European Conference of Ministers of Transport, and a number of U.S. and Japanese sources. For details consult the Notes to Chapter 2 in Volume 2 of this report.

Note: Total domestic travel includes both urban and intercity travel.

Table 2-2

Modal Shares of Total Domestic Passenger Travel, in Passenger-Kilometres, Selected Countries, 1965–1988

	1965 (%)	1970 (%)	1975 (%)	1980 (%)	1985 (%)	1988 (%)
Passenger-vehicle travel (e.g. cars, light trucks, and vans)						
Canada	93	93	92	91	91	90
United States	93	92	92	90	89	88
Japan	14	35	38	42	46	52
France	75	82	81	82	82	82
Germany	77	80	80	81	83	85
Italy	59	76	77	76	77	79
United Kingdom	69	75	77	82	84	86
Intercity bus and urban transit						
Canada	3	3	3	3	3	3
United States	3	2	2	2	2	1
Japan	21	17	14	14	12	10
France	10	7	6	7	6	6
Germany	12	11	12	11	9	8
Italy	21	12	12	14	14	13
United Kingdom	20	15	14	10	9	7
Intercity and commuter rail						
Canada	2	1	1	1	1	1
United States	1	1	**	**	**	**
Japan	65	47	46	40	39	34
France	15	11	11	10	10	9
Germany	12	9	8	7	7	6
Italy	19	12	10	9	8	7
United Kingdom	10	9	8	7	6	6
Air (domestic scheduled services)						
Canada	2	3	4	5	5	6
United States	3	5	6	8	9	10
Japan	1	1	3	4	4	4
France	**	1	1	1	2	2
Germany	**	**	**	**	**	**
Italy	**	1	1	1	1	1
United Kingdom	1	1	1	1	1	1

Source: Royal Commission staff calculations based on data from Statistics Canada the European Conference of Ministers of Transport, and a number of U.S. and Japanese sources. For details consult the Notes to Chapter 2 in Volume 2 of this report.

Notes: This table covers total domestic, not just domestic intercity, passenger transportion.

Data on total travel were used since internationally comparable data on the intercity portion of travel are not available. If intercity data were available, they would logically show an increased share for air, a decreased share for bus, and possibly a somewhat increased share for rail and somewhat decreased share for car.

Data may not be fully comparable across countries; thus the table should be used to make broad comparisons and significance should not be attached to small differences.

For geographically compact countries, domestic air travel may be unimportant. Data on total domestic and international air travel could be expected to show a much larger share for air for these countries.

** indicates share of less than 0.5%.

Canada's Passenger Transportation System: 1992 and Beyond

How much and what kind of transportation will travellers want, and be willing to pay for, in the next 30 years? What kinds of transportation services will be available? There is always a great deal of uncertainty when looking into the future. Passenger transportation requirements are the result of many factors — for example, the country's economic performance and the income levels of Canadians, changes in work patterns and lifestyles, and the development of new technology.

Extrapolating on present directions in passenger transportation provides some indication of future directions. Based on current trends:

- The car will remain the preferred mode of transportation and will dominate the public modes.
- In recent years — the only years for which we have data — people aged 25 to 54 have tended to travel more than those in younger and older age groups. As Baby Boomers have moved into adulthood and middle age, travel has increased. Over the next decade, changes in the age structure of the population will have relatively little impact on the total amount of travel. But after the turn of the century, the movement of the Baby Boomers into older age

groups will, if current travel patterns persist, tend to slow the growth of travel.

- Most long-distance travel, including almost all travel in the North, will continue to be by air.
- As a result of its small population and market, Canada will mainly rely upon transportation technology developed elsewhere. Canadian governments can set Canadian requirements for airplane emissions, but if companies based in other countries do not build equipment to those specifications, Canada will be limited in what it can do to influence the introduction of new technologies.
- Canada shares an international border with the United States, a country whose economy is ten times as large. Canada will have to continue taking account of its physical link to the United States in making future passenger transportation decisions.
- Canada's climate will continue to affect the costs of transportation. A cold climate makes transportation more expensive for several reasons: it affects the design, construction and life-cycle of vehicles and infrastructure; the costs of operations; and the seasonal demands for some infrastructure and equipment.

Projecting current trends, however, may not paint a complete picture of future transportation requirements, for a number of reasons:

- The demand for travel in the future, within each age group, could be different from today's pattern. For example, advances in medicine, changing lifestyles, and rising per capita income could mean seniors of the future will travel more than seniors do today.
- An aging population, which would have more leisure time and a higher proportion of citizens with disabilities, could have different preferences in choosing modes of transportation.
- Canadians' concerns about congestion and pollution in major urban areas might weaken their preference for car travel. Even a small shift in private car use could have a dramatic impact on the public modes of passenger transportation.

- Globalization could lead to increasing international travel. There is already some indication that this might happen. For example, between 1980 and 1990, international trips increased at an average annual rate of 5.2 percent, while domestic trips rose by 1.9 percent.
- Improvements in telecommunications technology could reduce the demand for face-to-face meetings and, therefore, lessen the demand for travel (especially business travel). On the other hand, the possibility of worldwide mobile personal communication links may enable business people to "take their office with them," thereby increasing travel and mobility.
- New forms of travel, such as advanced supersonic aircraft, intelligent vehicle-highway systems, faster rail systems and high-speed ferries, could influence the way Canadians travel.

Based on the experience of the past 30 years, we doubt that there will be dramatic change in the way Canadians travel in the next 30 years. Markets will continue to change, but the providers of passenger transportation services are unlikely to face dramatic shifts in demand or radically new forms of travel in the near future.

Nevertheless, because predicting the future accurately is virtually impossible, we recognized early on that our proposed framework for the passenger transportation system had to provide enough flexibility for industry, governments and travellers to adjust to major changes, should they occur.

Conclusion

Canada faces many opportunities and challenges, some of them similar to those of other countries. Canadians should understand how other countries are adjusting their passenger transportation systems. In other ways, Canada faces challenges and opportunities that are special — products of its unique history, geography, climate and culture. Canadians need solutions tailored to Canada's problems, issues and concerns.

ENDNOTES

1. After the enactment of the *National Transportation Act of 1967*, the government made accompanying changes to the *Railway Act*, and Canadian railway companies enjoyed a more liberalized environment than their U.S. counterparts until U.S. substantial economic deregulation of rail in the early 1980s.

2. As indicated in endnote 2 of Chapter 1, the range is due to intercity car travel being defined as either car trips over 80 kilometres in one-way distance, or all highway use by cars. See Notes to Chapter 1 and Notes to Chapter 2, in Volume 2 of this report.

3. Source for data on total government employment in transportation and communications: Statistics Canada, *Public Sector Employment and Remuneration 1990/91*, Catalogue No. 72-209, October 1991. This source does not report data for transportation employment alone.

4. For a more detailed description of intercity passenger transportation, see Volume 2, Chapter 2, of this report and Chapter III of *Getting There: The Interim Report of the Royal Commission on National Passenger Transportation* (Ottawa: Supply and Services Canada, 1991).

   Note: For both the domestic and international cases, intercity trips are defined as trips over 80 kilometres one way in this and the following section. This excludes many non-urban trips, especially by car, domestically, and many "cross-border shopping" international trips.

5. "Intercity" may be defined in different ways, and estimates of the amount of travel by car in particular are subject to considerable margins of uncertainty. Thus, our estimates of car travel, and of other means of transportation, in total intercity trips or in total passenger-kilometres travelled, should be viewed as approximate. See further discussion in Volume 2, Chapter 2 of this report.

CHAPTER 3

COSTS OF TRANSPORTATION AND WHO PAYS: TRAVELLERS OR TAXPAYERS?

INTRODUCTION

An essential first step in examining transportation issues and in making sound decisions on passenger transportation is to understand the full costs of transportation today, including accident costs, the cost of damage to the environment, and the cost of providing infrastructure. Further, if travellers are to cover the costs of providing and maintaining the passenger transportation system — as we will recommend — it is important to know what proportion of total costs travellers currently pay and what proportion is borne by others.

Some Canadians may be concerned that transferring the costs borne by others to those who travel might increase costs of travel, discourage use of the passenger transportation system and slow economic growth. We remind them, however, that these costs are already being borne by Canadians. Funding transportation through charges, rather than taxes, would not, by itself, alter the total costs Canadians pay. Furthermore, we believe that the changes we recommend in how Canadians should pay for the passenger transportation system will also lead to changes that will lower the total costs of the passenger transportation system.

In our approach, travellers and carriers would pay full costs, but these costs would be based on principles of efficient investment and pricing. Travellers would not be paying for a passenger transportation system that is wasteful because it has too much or too little capacity, or capacity of the wrong type and in the wrong place. Travellers and carriers would be able to purchase services at the lowest possible prices for the greatest benefit.

The remainder of this chapter is devoted to estimating the comprehensive costs of the current system — a system that is not as efficient as it could become. Our figures, therefore, overestimate the total costs of transportation and the additional costs to be paid by travellers, but these figures are a key starting point in understanding the current system and the potential for change. In referring to costs paid by travellers, we include charges to carriers that will be passed on to travellers in the fares they pay.

Today's Subsidies and Costs — Hidden and Direct

Currently, taxpayers knowingly support the transportation system through direct subsidies and unknowingly through hidden subsidies. Direct subsidies are those that governments show in their budgets as amounts transferred to carriers or travellers from the taxpayers. Hidden subsidies are those that are less visible to the public.

Hidden subsidies hamper the development of rational transportation policy. During our public hearings, several interveners expressed frustration about hidden subsidies in the passenger transportation system. These subsidies may mislead governments trying to make decisions based on efficiency and competition, and certainly lessen the public's ability to assess policy decisions. If, for example, a government must choose between building a road for a certain route or providing rail service, it will be unable to make the wisest choice (the best transportation at the least cost to the traveller) if the true costs of road and rail are not known.

The House of Commons Standing Committee on Transport also recognized the problems associated with hidden subsidies. In its March 1992 report, *High Speed Rail: The Canadian Concept*, in Recommendation 9, the Committee stated ". . . considering it is essential to more accurately determine the amount of subsidy for each mode, the Royal Commission on National Passenger Transportation should place particular emphasis, in its Final Report, on the identification of the levels of hidden subsidization within each mode."

Hidden subsidies, direct subsidies, special advantages or disadvantages resulting from government action can arise in a number of ways.

Transportation infrastructure costs: Governments may provide infrastructure (terminals, links and traffic control — see Table 2-1 in Chapter 2) to a mode free of charge or for charges that do not recover the full costs. In these cases, the subsidy comes from the taxpayer and appears in government budgets. How the subsidy should be apportioned among different groups of travellers may be subject to debate.

Environmental costs: At present, governments allow transportation activities to cause damage to the environment without charging carriers or travellers for these damages. This is equivalent to a subsidy from today's public, who experience the adverse effects on the environment, and possibly a subsidy from future generations as well. Other than costs of some clean-up work performed by governments, which are included in their budgets, most of the costs associated with environmental damage (for example, discomfort or ill health) do not appear in government accounts.

Accident costs: Travellers do not pay all the costs associated with accidents. Some of the costs are paid for by public health insurance systems that do not recover, or only partially recover, the costs from transportation users and carriers.

Special transportation taxes and fees: These taxes and fees are specific to transportation, but are not designated as charges for infrastructure, environmental damage or accidents. They include fuel taxes, and vehicle, carrier and drivers' licences. In our view, general consumption taxes, such as provincial sales taxes and the Goods and Services Tax, do not constitute a special cost or disadvantage for a particular passenger transportation mode, since such taxes are applied broadly in the economy. These general taxes are not included in our analysis. But special taxes and fees on transportation fares, or on inputs such as fuel, are of interest because they may give one mode a financial advantage over another.

General property taxes applied on the same basis to all industries would not be included, but differentials in the application of property taxes — for example, levying such taxes on rail rights-of-way but not on road — should, in principle, be recognized. Where special taxes — or differentials due to above-average rates of general taxes — exist, they should be considered to offset hidden subsidies associated with infrastructure costs, environmental damage and accident costs currently paid by taxpayers.

We have estimated the costs related to transportation infrastructure, environmental damage, accidents, the revenues from special taxes and fees, and payments of direct subsidies. We use these estimates to consider how governments treat different types of passenger transportation.

System-Wide Costs

As we stated earlier, people will not be able to make sound transportation decisions unless they have comprehensive figures for the costs of travel in each mode. To our knowledge, such figures have never been calculated in Canada. We have estimated the system-wide costs of transportation and how much users currently pay, and how much others pay (Table 3-1 and Chart 3-1). The total costs borne by others provide an estimate of total subsidies, both hidden and direct.

"Users" are travellers, vehicle owners and carriers. "Others," who pay for costs of transportation although they may or may not be using the transportation system, are taxpayers (who cover the financial costs paid by governments) and the general public (who directly bear most environmental damage costs).

We caution, however, that our estimates of costs are imprecise because of the current lack of data. Nonetheless, we believe that our figures are useful to begin gauging the true costs of transportation in the

different modes. It will be important for governments to develop better estimates before making future policy decisions, including setting charges for travellers.

We present these system-wide averages as an introduction. Later in the chapter, we provide estimates of the costs for particular routes, which may be more relevant to some policy decisions than the system-wide averages.

A simple basis for comparing costs between modes is the cost per passenger-kilometre, that is, how much it costs to carry one passenger one kilometre, or total costs divided by total passenger-kilometres. We recognize that cost per passenger-kilometre is not a perfect basis of comparison, because transportation by different modes is not always comparable. For example, when people travel by ferry and car, the costs are those of moving a passenger "accompanied by an average amount of car." On the other hand, the bus, airplane and train costs are only for passengers and their personal baggage. On some carriers, food is provided; on others, passengers pay extra for food. The average trip also differs across the modes. Air trips are generally much longer and ferry trips much shorter than those taken by road or rail. System-average costs per passenger-kilometre are therefore not fully comparable, but they do provide a start.

The costs of travel by different modes vary substantially. This is reasonable because some modes are more expensive to operate and provide more services than others. We are particularly interested, however, when costs not borne by users differ substantially by mode of travel. These variations indicate that government policy today is not neutral across modes and gives some modes competitive advantages over others.

INTERPRETING TABLE 3-1 AND CHART 3-1

Table 3-1(a) illustrates the components of average costs, in cents per passenger-kilometre, for domestic travel by the different modes in 1991. Table 3-1(b) estimates the total costs of domestic intercity

travel, in millions of dollars, for the different modes. Our total cost estimates for car travel in this chapter and in Chapter 18 refer to all car travel on highways, rather than the narrower definition of inter-city car travel restricted to trips of 80 kilometres or more used in estimates in other chapters.

The components of system-average costs, Table 3-1(a), are also presented graphically in Chart 3-1.

The costs borne by users (including special transportation taxes and fees paid by travellers) are stacked so that the overall height of the bar on the left indicates the total costs borne by travellers.

The costs borne by others are stacked to form the bar on the right. The total length of the bar represents the gross cost borne by others, before subtracting revenue received from special transportation taxes and fees. The distance below zero at which the bar starts is equal to the amount received. (The segment below zero represents revenues from the same special taxes and fees that are shown as a cost to users by the segment at the top of the left bar.) Therefore, the total height of the bar above zero shows the net cost borne by others.

The height of the users bar may be compared with the height (above zero) of the others bar to see the relative net contributions of users and others to the means of transportation in question.

We use estimates for 1991 to provide a current view of costs. Where 1991 data on costs and system use are not available, our figures are based on older data projected forward to 1991. This increases the margin of error in the estimates. In addition, we have attempted to smooth out the impact of the recession; our estimates are for normal costs and revenues in 1991. The table shows system-average cost estimates per passenger-kilometre to the nearest tenth of a cent, and total cost estimates to the nearest million dollars. Later tables show route costs to the nearest dollar. This is done in order to show some small cost components that would disappear if the table showed numbers that were rounded to the extent appropriate for the larger

cost components. All estimates, however, should be viewed as approximate.

The cost estimates are documented in Volume 2 of this report. In the following paragraphs, we briefly explain the meaning of each component of the costs.

Table 3-1(a)
Illustrative System-Wide Annual Costs of Intercity Domestic Travel, Paid by Users and Others, 1991, in 1991 Dollars

Average costs: cents per passenger-kilometre						
	Car			Bus		
Type of cost	Users	Others	Total	Users	Others	Total
Infrastructure	0.0	2.1	2.1	0.0	0.3	0.3
Environmental	0.0	0.6	0.6	0.0	0.2	0.2
Accident	3.7	0.1	3.8	0.4	0.0	0.4
Special trans. tax/fee	1.2	–1.2	0.0	0.3	–0.3	0.0
Vehicle/Carrier	10.9	0.0	10.9	8.4	0.2	8.6
Total	**15.8**	**1.6**	**17.4**	**9.1**	**0.4**	**9.5**
	Airplane			Train		
Type of cost	Users	Others	Total	Users	Others	Total
Infrastructure	2.2	3.4	5.6	2.9	0.0	2.9
Environmental	0.0	1.0	1.0	0.0	0.6	0.6
Accident	0.1	0.0	0.1	0.2	0.0	0.2
Special trans. tax/fee	0.6	–0.6	0.0	0.4	–0.4	0.0
Vehicle/Carrier	14.4	0.1	14.4	7.4	32.8	40.2
Total	**17.3**	**3.8**	**21.1**	**10.9**	**33.0**	**43.9**
	Ferry			All intercity travel		
Type of cost	Users	Others	Total	Users	Others	Total
Infrastructure	0.0	4.7	4.7	0.2	2.2	2.4
Environmental	0.0	2.0	2.0	0.0	0.6	0.6
Accident	0.1	0.0	0.1	3.3	0.2	3.4
Special trans. tax/fee	0.9	–0.9	0.0	1.1	–1.1	0.0
Vehicle/Carrier	24.1	11.6	35.7	11.2	0.2	11.4
Total	**25.1**	**17.4**	**42.5**	**15.8**	**2.0**	**17.8**

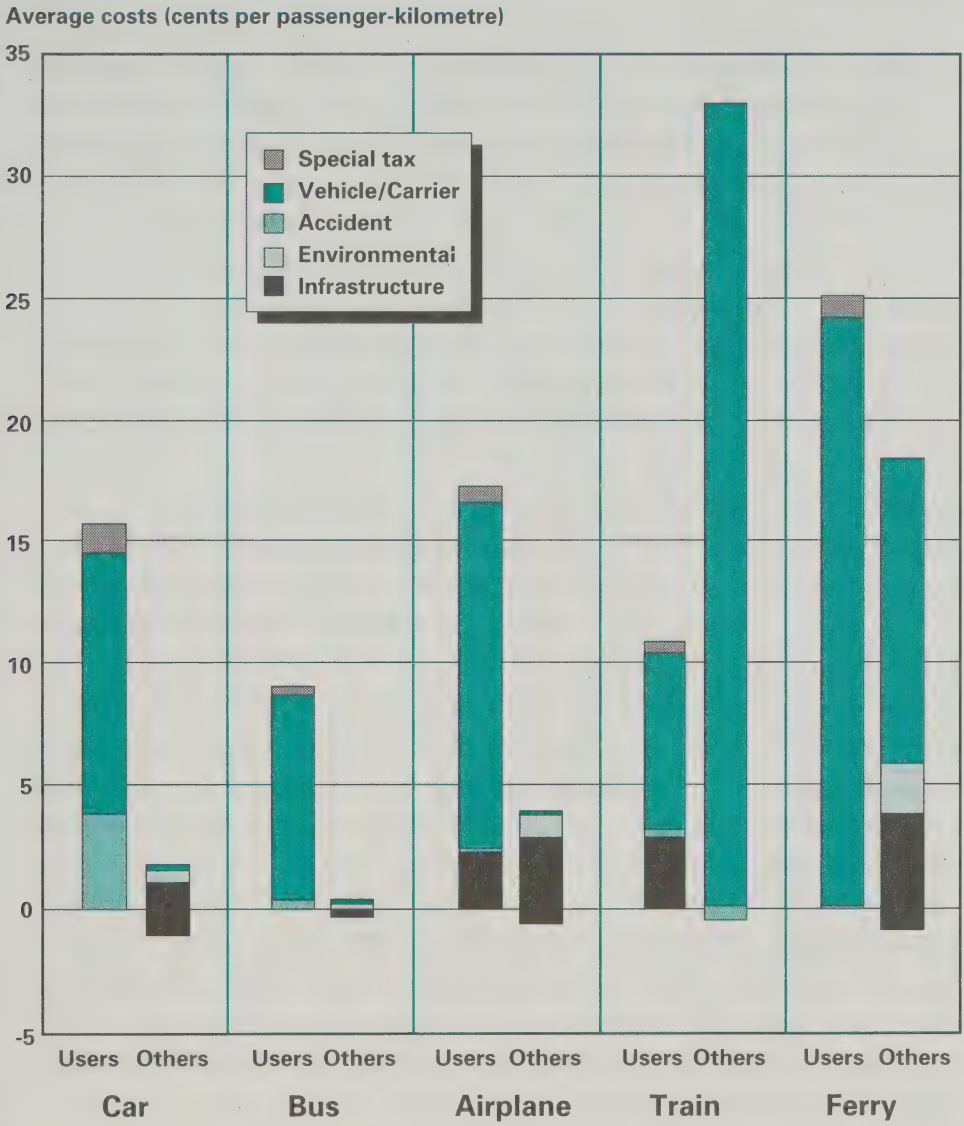
Table 3-1(b)
Illustrative System-Wide Annual Costs of Intercity Domestic Travel, Paid by Users and Others, 1991, in 1991 Dollars

Totals: $ millions						
	Car (210 billion pass-km)			Bus (3.3 billion pass-km)		
Type of cost	Users	Others	Total	Users	Others	Total
Infrastructure	0	4,486	4,486	0	10	10
Environmental	0	1,211	1,211	0	8	8
Accident	7,874	172	8,046	13	0	13
Special trans. tax/fee	2,461	–2,461	0	9	–9	0
Vehicle/Carrier	22,817	0	22,817	277	8	285
Total	**33,152**	**3,408**	**36,560**	**299**	**17**	**316**
	Airplane (25 billion pass-km)			Train (1.4 billion pass-km)		
Type of cost	Users	Others	Total	Users	Others	Total
Infrastructure	556	845	1,401	41	0	41
Environmental	0	247	247	0	9	9
Accident	25	0	25	3	0	3
Special trans. tax/fee	149	–149	0	6	–6	0
Vehicle/Carrier	3,595	0	3,595	104	459	563
Total	**4,325**	**943**	**5,268**	**154**	**462**	**616**
	Ferry (0.85 billion pass-km)			All intercity travel (240 billion pass-km)		
Type of cost	Users	Others	Total	Users	Others	Total
Infrastructure	0	40	40	597	5,381	5,978
Environmental	0	17	17	0	1,492	1,492
Accident	1	0	1	7,916	172	8,088
Special trans. tax/fee	7	–7	0	2,632	–2,632	0
Vehicle/Carrier	205	98	303	26,998	565	27,563
Total	**213**	**148**	**361**	**38,143**	**4,978**	**43,121**

Note: In order to illustrate smaller components, averages are shown to the nearest tenth of a cent and totals to the nearest million dollars. In general, cost estimates are approximate and are not accurate to this level of precision. See text.

Chart 3-1

Illustrative Comprehensive System-Wide Costs of Intercity Domestic Travel, Paid by Users and Others, 1991



Note: The chart is a graphic representation of Table 3-1(a). Any negative components of the costs borne by others are represented by shifting the others bar below the zero line.[1]

For purposes of our cost analysis, "infrastructure" consists of terminals, links and traffic control (including police systems) not provided by carriers. It excludes most bus terminals, some ferry docks, and some passenger rail stations that are provided by carriers. The total cost for transportation infrastructure is the sum of the estimated capital and operating expenses. (Where infrastructure is provided by a carrier, these costs are built into vehicle/carrier costs.) The others portion is the total cost minus the amount covered by charges paid by travellers and carriers.

The estimates of infrastructure costs include depreciation and interest on the investment in the facility. When the value of land is also a significant part of the total value of the facility, an interest charge on the value of land is also included in costs. The basis for the infrastructure cost estimates is discussed further in Chapter 5.

Infrastructure costs to travellers and carriers are charges levied by the infrastructure providers (primarily governments) to help cover the costs of building and operating them. For air travel, charges consist of the Air Transportation Tax, airport landing and terminal fees, and rent for airport space used by carriers. For rail travel, Canadian National Railways and Canadian Pacific Ltd. charge VIA Rail for use of track and other services (such as dispatch). For road travel, there are road tolls on one highway in British Columbia, but the revenues are so small relative to the total road system that they have not been included in the table.

Some infrastructure costs may be higher than necessary, in part because bigger or more elaborate facilities than travellers require have been provided. In this chapter, we set out existing costs; in subsequent chapters, we discuss whether and how some of these costs might be reduced.

Environmental costs result from the environmental damage caused by air and noise pollution from vehicle and carrier operations. As we pointed out earlier, the public generally bears these costs, which do

not appear in government accounts. Environmental costs borne by others are the estimated values of the total damage and unpleasantness associated with vehicle emissions and noise (Chapter 7).

Accident costs include a valuation of death and injury, health care costs and property damage. Travellers pay accident costs through their insurance premiums and through injuries and damage not covered by personal insurance or government health insurance. Accident costs borne by others are government health care costs that are not recovered from self-financing vehicle insurance plans or from carriers (Chapter 8).

Special transportation taxes and fees include fuel taxes and vehicle, carrier and drivers' licence charges. These special transportation taxes and fees are different from other government charges to travellers, such as the Air Transportation Tax and tolls, since governments do not directly apply the revenues raised from the special taxes to cover the costs of transportation infrastructure, environmental damage or accidents. Therefore, our table shows special taxes and fees as a separate category of charge.

We believe special taxes and fees should be considered an offset to infrastructure, environmental costs and accident costs borne by the taxpayer or the public. We have, however, adjusted the fuel tax components of special taxes before including them in the table, since every province except Quebec exempts fuel from the general provincial sales tax. For these provinces, we consider only that part of the fuel tax in excess of the provincial sales tax rate to be a special tax on transportation.

In Table 3-1 and Chart 3-1, we show the special taxes and fees as a component, along with charges for infrastructure, environmental damage and accidents, of total costs paid by users. Since special tax revenues are not used to finance a particular type of transportation expenditure, they may be viewed as a general offset to costs borne by others. Hence, revenues from taxes and fees are shown in the

others column with a negative sign. The resulting zero in the total column shows that these taxes do not increase the total costs of passenger transportation, but rather are a mechanism for determining who is paying what.

Vehicle/carrier costs are the capital and operating costs incurred by owners of private vehicles or by carriers providing public transportation. These costs also include infrastructure costs when carriers provide their own facilities, for example, when bus or ferry companies own their own terminals. Vehicle/carrier costs borne by users are calculated using fares charged to travellers or the costs of buying and operating a car, and subtracting charges to travellers and carriers for infrastructure, environmental costs, accident costs and special taxes and fees. In our estimates, vehicle/carrier costs also include costs arising from equipment requirements designed to lessen pollution or increase safety. (Such costs might alternatively be included under environmental or safety costs, but are difficult to separate from the basic cost of the vehicle.)

Vehicle/carrier costs borne by others represent direct subsidies to carrier operators. (In some cases, it might be argued that part of the direct subsidy should be viewed as covering infrastructure or other charges paid by the carrier, but we show the full direct subsidy as vehicle/carrier costs borne by others.)

Differences in the vehicle/carrier costs of each type of carrier, including cars, may not be considered relevant for government transportation policy decisions as long as travellers pay the costs and as long as monopoly pricing by carriers is not a concern. On the other hand, these vehicle/carrier costs form the largest component of total costs; it is useful to keep them in mind when considering whether costs currently borne by others are important or unimportant in the total picture for a given mode of travel.

In Table 3-1, total costs for users, others, and in total, are sums of their components. As mentioned earlier, we use total costs borne by others as our measure of the net subsidy from governments and

the public to each means of transportation. The total of costs borne by users and others is, of course, our measure of the overall costs of providing each means of transportation. When we refer to "total costs," we are referring to this sum.

CONCLUSIONS: TABLE 3-1 AND CHART 3-1

Average Costs and Subsidies

Bus travel is the least costly mode. The average total cost of bus travel is 9.5¢ per passenger-kilometre. We estimate that bus travellers pay all but 0.4¢ per passenger-kilometre of this. Bus travellers receive the least subsidy per passenger-kilometre of all travellers.

Car and airplane travellers receive a somewhat larger total subsidy than bus travellers per passenger-kilometre. The general taxpayer and the public subsidize car travel by an estimated 1.6¢ per passenger-kilometre and air travel by 3.8¢ per passenger-kilometre. These subsidies cover infrastructure, environmental and accident costs not paid by users, plus small direct subsidies paid for air travel in some provinces, less special taxes collected.

The largest gaps between users and total costs are for train and ferry travel — 33¢ per passenger-kilometre for train and 17.4¢ per passenger-kilometre for ferry. This is due to large, direct subsidies from taxpayers to travellers using passenger rail and some ferry services (these direct subsidies are shown as vehicle/carrier costs borne by others).

Environmental Costs

Our figures for environmental costs are based on high estimates for damage associated with carbon dioxide and other pollutants that affect air quality relative to the ranges of estimates available. We did this so the overall subsidy comparison would err on the side of favouring the less-polluting modes of passenger transportation. Although important, environmental costs do not turn out to be large

relative to total costs for any of the modes. Environmental costs for bus travel are the lowest.

Some observers believe that car travel causes a great deal more pollution than train or bus travel. When car pollution is viewed in terms of the average per passenger-kilometre, however, its costs are not always the highest. There are several reasons for this. Regulations regarding car exhaust emissions have encouraged greater reductions in the amount of pollutants emitted by cars than by buses or trains. In addition, when train equipment is old, the occupancy rate is low, or dining and sleeping services as well as basic seating are provided, trains may use as much or more fuel per passenger-kilometre as cars.

Nevertheless, cars account for most pollution, because most travel is by car.

Accident Costs

Accident costs per passenger-kilometre are much higher for travel by car than they are for any other mode. These costs account for almost one quarter of the total costs of car travel. Travellers bear most of these costs through insurance premiums and by paying for uninsured losses they suffer. Accident costs borne by others through unrecovered health care system costs are estimated to amount to 0.1¢ per passenger-kilometre. Costs of accidents borne by others for bus, air and train travel are negligible.

Total Costs

Table 3-1(b) provides estimates of the total costs, in millions of dollars for each mode of transportation. In the preceding discussion, we have focussed attention on differences in average costs, especially those borne by others. The average costs borne by others largely represent subsidies from governments to the various modes less special taxes and fees collected by governments. As Table 3-1 shows, governments currently treat the various modes of travel differently.

Total cost estimates are also of interest, however, as they indicate the overall amounts spent on each mode of transportation. While the average subsidy rates for car and air travel are relatively low, the large numbers of kilometres represented by car and air travel mean the total subsidies to these modes account for the bulk of the estimated $5.0 billion total subsidy to domestic intercity passenger travel (estimated at $3.4 billion for car and $0.9 billion for airplane).

Costs: Some Sample Routes

In addition to estimating comprehensive, system-wide costs, we have estimated the costs per one-way trip for four intercity routes that represent different combinations of length and passenger volume:

- Toronto to Montreal — a high-volume, medium-distance route (Table 3-2 and Chart 3-2);
- Saskatoon to Halifax — a long-distance route consisting mainly of medium-volume segments (Table 3-3 and Chart 3-3);
- Val d'Or to Montreal — a medium-distance route including low-volume segments (Table 3-4 and Chart 3-4); and
- Vancouver to Toronto — a long-distance route with high-volume air travel (Table 3-5 and Chart 3-5).

(Costs for a route that includes a ferry segment are shown in Chapter 18.)

INTERPRETING TABLES 3-2 TO 3-5 AND CHARTS 3-2 TO 3-5

In these tables, our estimates for total and users' vehicle/carrier costs are based on averages of costs and revenue yields for routes of similar volume and distance. They do not reflect actual carrier costs or revenues on the particular routes.

Table 3-2

Illustrative Comprehensive Costs of Intercity Travel, per Passenger per One-Way Trip, 1991, in 1991 Dollars — Toronto to Montreal

Type of cost		Car costs currently borne by: Users	Others	Total	Bus costs currently borne by: Users	Others	Total
Infrastructure	($)	0	6	6	0.0	0.3	0.3
Environmental	($)	0	4	4	0.0	1.0	1.0
Accident	($)	20	0	20	2.2	0.0	2.2
Special trans. tax/fee	($)	6	–6	0	0.8	–0.8	0.0
Vehicle/Carrier	($)	59	0	59	36.6	–3.0	33.6
Total	**($)**	**85**	**4**	**89**	**39.6**	**–2.5**	**37.1**
Distance travelled	(km)		539			539	
Costs per passenger-km	(¢)	15.8	0.8	16.6	7.3	–0.4	6.9
Costs per standardized passenger-km[a]	(¢)	17.2	0.8	18.0	8.0	–0.5	7.5

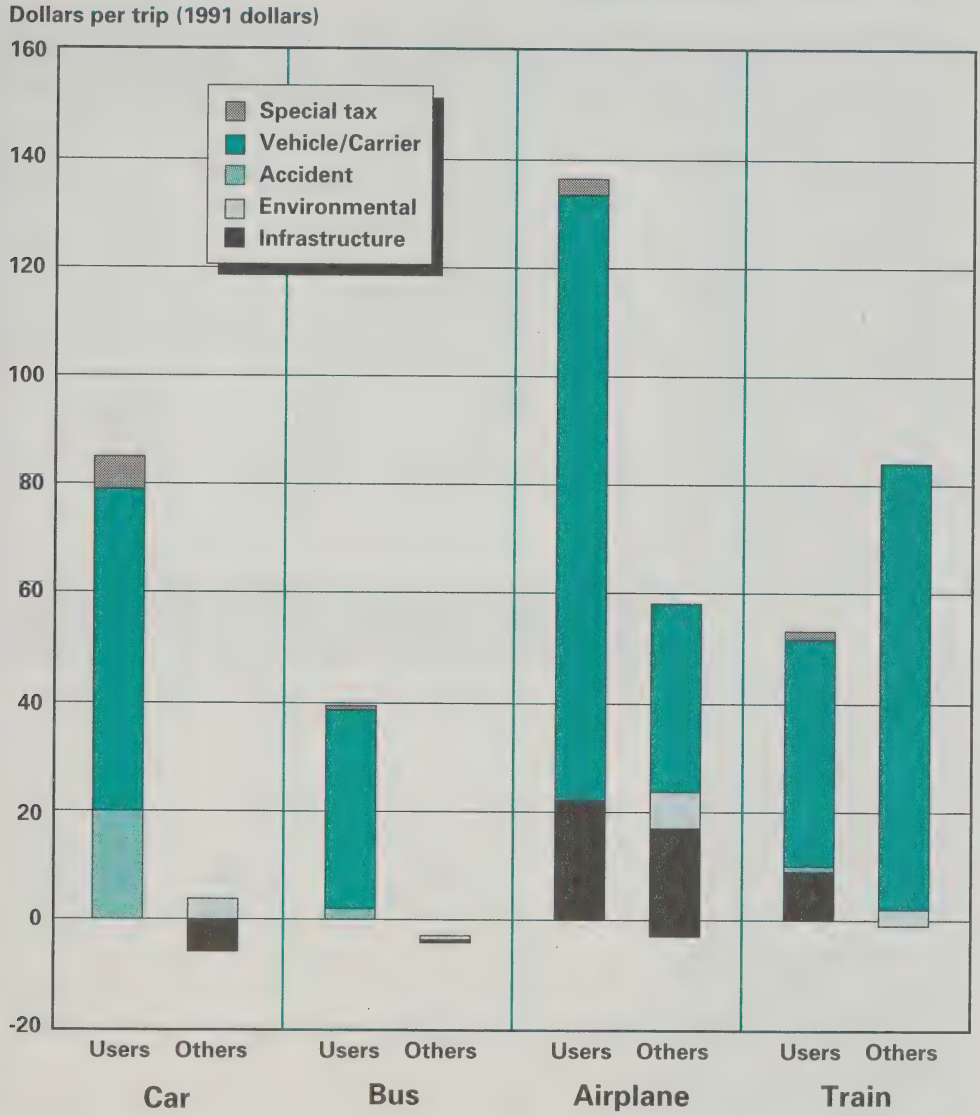
Type of cost		Airplane costs currently borne by: Users	Others	Total	Train costs currently borne by: Users	Others	Total
Infrastructure	($)	22	20	42	9	0	9
Environmental	($)	0	6	6	0	3	3
Accident	($)	0	0	0	1	0	1
Special trans. tax/fee	($)	3	–3	0	1	–1	0
Vehicle/Carrier	($)	111	35	146	42	82	124
Total	**($)**	**136**	**58**	**194**	**53**	**84**	**137**
Distance travelled	(km)		496			540	
Costs per passenger-km	(¢)	27.4	11.6	39.0	9.8	15.6	25.4
Costs per standardized passenger-km[a]	(¢)	27.4	11.6	39.0	10.6	17.0	27.6

a. Standardized to air distance.

Note: In order to illustrate smaller components, averages per passenger-kilometre are shown to the nearest tenth of a cent and route totals to the nearest dollar. See text for qualifications.

Chart 3-2

Illustrative Comprehensive Costs per Passenger, Dollars per Trip, Toronto to Montreal



Note: The chart is a graphic representation of Table 3-2. Any negative components of the costs borne by others are represented by shifting the others bar below the zero line.[1]

Table 3-3

Illustrative Comprehensive Costs of Intercity Travel, per Passenger per One-Way Trip, 1991, in 1991 Dollars — Saskatoon to Halifax

Type of cost		Car costs currently borne by: Users	Others	Total	Bus costs currently borne by: Users	Others	Total
Infrastructure	($)	0	67	67	0	8	8
Environmental	($)	0	21	21	0	7	7
Accident	($)	168	4	172	18	0	18
Special trans. tax/fee	($)	53	–53	0	9	–9	0
Vehicle/Carrier	($)	487	0	487	261	19	280
Total	**($)**	**708**	**39**	**747**	**288**	**25**	**313**
Distance travelled	(km)		4,485			4,485	
Costs per passenger-km	(¢)	15.8	0.9	16.7	6.4	0.5	6.9
Costs per standardized passenger-km[a]	(¢)	20.2	1.1	21.3	8.2	0.7	8.9

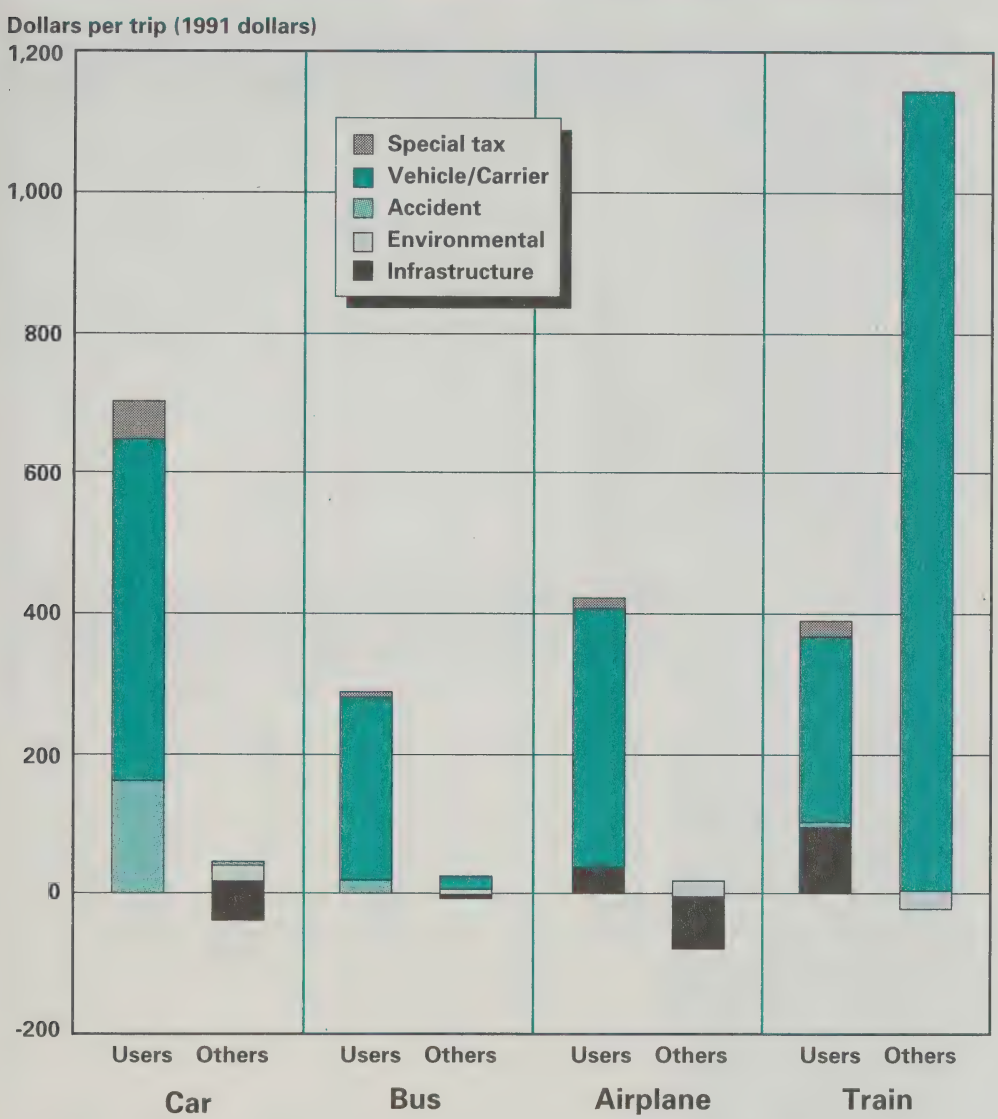
Type of cost		Airplane costs currently borne by: Users	Others	Total	Train costs currently borne by: Users	Others	Total
Infrastructure	($)	37	68	105	93	0	93
Environmental	($)	0	22	22	0	28	28
Accident	($)	4	0	4	8	0	8
Special trans. tax/fee	($)	15	–15	0	21	–21	0
Vehicle/Carrier	($)	368	–56	312	264	1,139	1,403
Total	**($)**	**424**	**19**	**443**	**386**	**1,146**	**1,532**
Distance travelled	(km)		3,500			4,468	
Costs per passenger-km	(¢)	12.1	0.5	12.6	8.6	25.7	34.3
Costs per standardized passenger-km[a]	(¢)	12.1	0.5	12.6	11.0	32.8	43.8

a. Standardized to air distance.

Note: In order to illustrate smaller components, averages per passenger-kilometre are shown to the nearest tenth of a cent and route totals to the nearest dollar. See text for qualifications.

Chart 3-3

ILLUSTRATIVE COMPREHENSIVE COSTS PER PASSENGER, DOLLARS PER TRIP, SASKATOON TO HALIFAX



Note: The chart is a graphic representation of Table 3-3. Any negative components of the costs borne by others are represented by shifting the others bar below the zero line.[1]

Table 3-4

Illustrative Comprehensive Costs of Intercity Travel, per Passenger per One-Way Trip, 1991, in 1991 Dollars — Val d'Or to Montreal

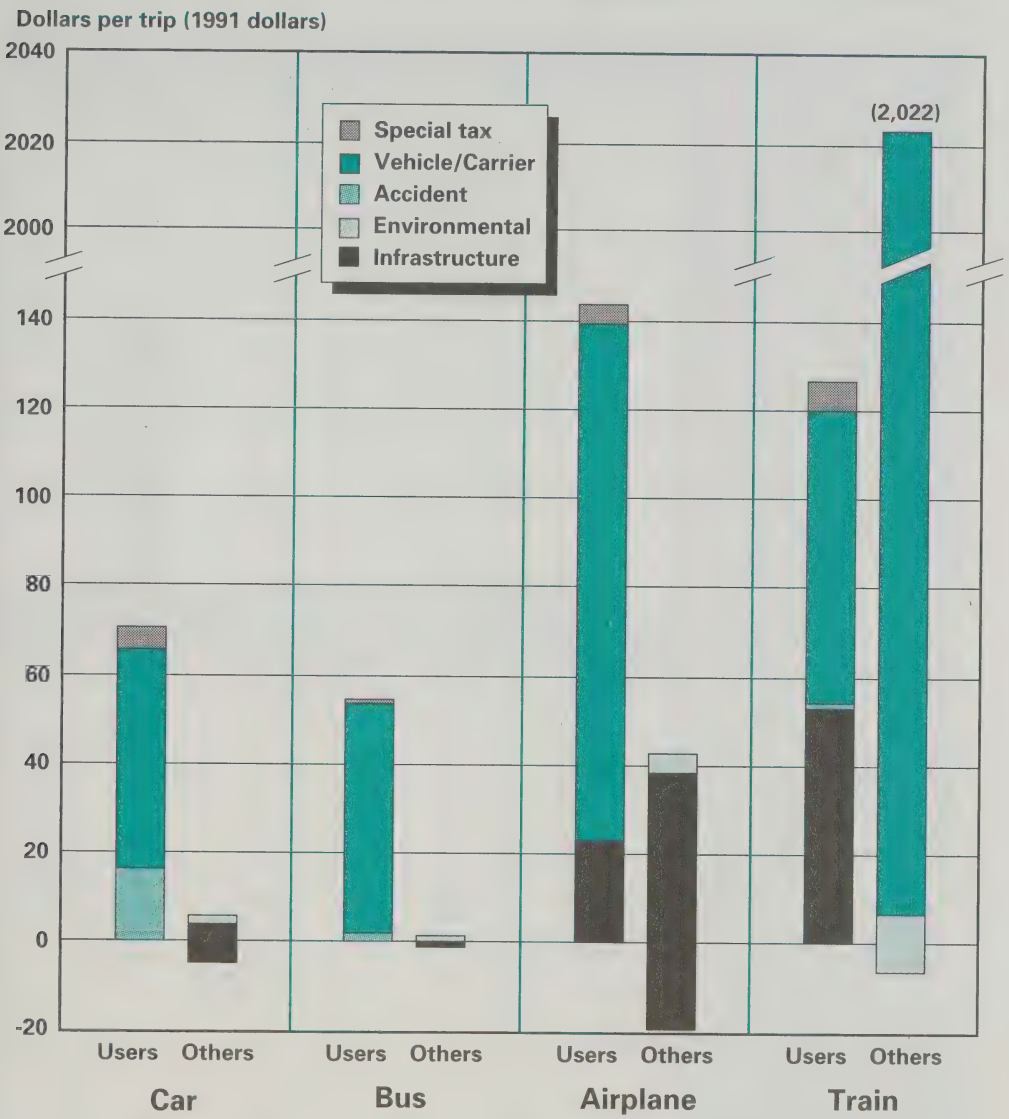
		Car costs currently borne by:			Bus costs currently borne by:		
Type of cost		Users	Others	Total	Users	Others	Total
Infrastructure	($)	0	9	9	0	1	1
Environmental	($)	0	2	2	0	1	1
Accident	($)	17	0	17	2	0	2
Special trans. tax/fee	($)	5	–5	0	1	–1	0
Vehicle/Carrier	($)	49	0	49	53	0	53
Total	**($)**	**71**	**6**	**77**	**56**	**1**	**57**
Distance travelled	(km)		450			450	
Costs per passenger-km	(¢)	15.8	1.4	17.2	12.4	0.2	12.6
Costs per standardized passenger-km[a]	(¢)	16.7	1.5	18.2	13.2	0.3	13.5
		Airplane costs currently borne by:			Train costs currently borne by:		
Type of cost		Users	Others	Total	Users	Others	Total
Infrastructure	($)	23	57	80	53	0	53
Environmental	($)	0	5	5	0	13	13
Accident	($)	0	0	0	1	0	1
Special trans. tax/fee	($)	4	–4	0	7	–7	0
Vehicle/Carrier	($)	116	–15	101	66	2,016	2,082
Total	**($)**	**143**	**43**	**186**	**127**	**2,022**	**2,149**
Distance travelled	(km)		425			700	
Costs per passenger-km	(¢)	33.8	10.1	43.9	18.2	288.8	307.0
Costs per standardized passenger-km[a]	(¢)	33.8	10.1	43.9	30.0	475.7	505.7

a. Standardized to air distance.

Note: In order to illustrate smaller components, averages per passenger-kilometre are shown to the nearest tenth of a cent and route totals to the nearest dollar. See text for qualifications.

Chart 3-4

Illustrative Comprehensive Costs per Passenger, Dollars per Trip, Val d'Or to Montreal



Note: The chart is a graphic representation of Table 3-4. Any negative components of the costs borne by others are represented by shifting the others bar below the zero line.[1]

Table 3-5

Illustrative Comprehensive Costs of Intercity Travel, per Passenger per One-Way Trip, 1991, in 1991 Dollars — Vancouver to Toronto

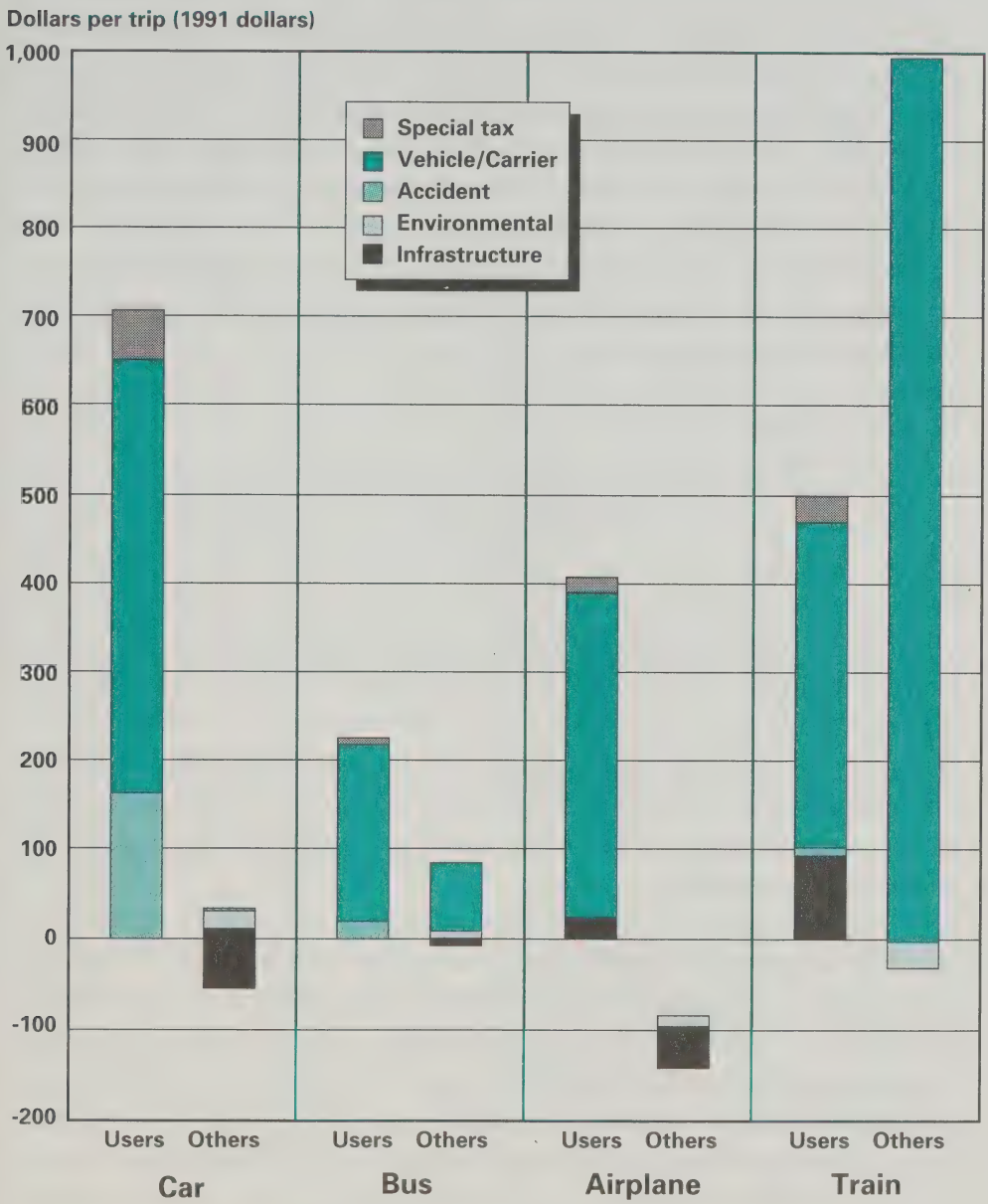
		Car costs currently borne by:			Bus costs currently borne by:		
Type of cost		Users	Others	Total	Users	Others	Total
Infrastructure	($)	0	66	66	0	8	8
Environmental	($)	0	20	20	0	6	6
Accident	($)	168	4	172	18	0	18
Special trans. tax/fee	($)	53	–53	0	8	–8	0
Vehicle/Carrier	($)	488	0	488	198	76	274
Total	**($)**	**709**	**37**	**746**	**224**	**82**	**306**
Distance travelled	(km)		4,492			4,492	
Costs per passenger-km	(¢)	15.8	0.8	16.6	5.0	1.8	6.8
Costs per standardized passenger-km[a]	(¢)	21.1	1.1	22.2	6.7	2.4	9.1
		Airplane costs currently borne by:			**Train costs currently borne by:**		
Type of cost		Users	Others	Total	Users	Others	Total
Infrastructure	($)	28	44	72	91	0	91
Environmental	($)	0	13	13	0	26	26
Accident	($)	3	0	3	8	0	8
Special trans. tax/fee	($)	19	–19	0	33	–33	0
Vehicle/Carrier	($)	357	–123	234	368	1,000	1,368
Total	**($)**	**407**	**–85**	**322**	**500**	**993**	**1,493**
Distance travelled	(km)		3,365			4,467	
Costs per passenger-km	(¢)	12.1	–2.5	9.6	11.2	22.2	33.4
Costs per standardized passenger-km[a]	(¢)	12.1	–2.5	9.6	14.9	29.5	44.4

a. Standardized to air distance.

Note: In order to illustrate smaller components, averages per passenger-kilometre are shown to the nearest tenth of a cent and route totals to the nearest dollar. See text for qualifications.

Chart 3-5

Illustrative Comprehensive Costs per Passenger, Dollars per Trip, Vancouver to Toronto



Note: The chart is a graphic representation of Table 3-5. Any negative components of the costs borne by others are represented by shifting the others bar below the zero line.[1]

In addition to showing estimates for the components of the costs for each means of transportation on the route in question, the tables show the overall average cost per passenger-kilometre, borne by users, others, and in total. These average per-passenger-kilometre costs, calculated using the route lengths for each different means of transportation, provide a basis for comparing their operating characteristics. Because the route length between two centres can differ for different means of travel, for some purposes — for example when considering the overall amount of subsidy for travel between two points — it is of interest to compare per-passenger-kilometre costs on a standardized basis. We have used the air distance for this standardized comparison.

Cross Subsidies

The difference between user and total vehicle/carrier costs on a route includes the impact of cross subsidies. Cross subsidies occur when a carrier uses revenues from profitable routes to cover part of the costs of unprofitable routes. For example, under provincial regulation, bus companies must provide service on low-volume routes in order to be granted high-volume routes; they subsidize the former with the profits from the latter. In our route tables, cross subsidies (the difference between estimates of total vehicle/carrier cost for the route and the vehicle/carrier share of fare revenues) are included in vehicle/carrier costs borne by others since other travellers on other routes pay these cross subsidies.

Some governments provide direct subsidies to buses on a small portion of total bus routes; these subsidies averaged across all bus travel are shown as vehicle/carrier costs borne by others in the system-wide costs. Cross subsidies do not appear in the system-wide average table (they cancel out). But, in the route tables, the amount in the others column for vehicle/carrier costs represents any direct subsidy plus any cross subsidy.

For bus routes of the Toronto to Montreal type, this amount is estimated to be negative. This is because although we estimate that the traveller pays an average of $36.60 toward vehicle/carrier costs for this type of trip, the average cost to the bus company is $33.60. In this case, there is no direct government subsidy and, therefore, the minus $3.00 shown for vehicle/carrier costs borne by others is a potential cross subsidy from passengers on this type of route to those travelling other routes operated by the same company.

On the other hand, for the Vancouver to Toronto type of route, we estimate that, given the lower bus fares for through-travel, bus passengers pay less than the average costs (average costs include a share in company overhead). In other words, they receive a cross subsidy. For air routes of the Vancouver to Toronto type, the vehicle/carrier situation is the reverse; on these air routes, passengers are estimated to contribute more than the average amount to profits. In other words they pay a cross subsidy.

In the case of trains, the entire amount of vehicle/carrier costs borne by others is an estimate of the direct taxpayer subsidy attributable to that route.

CONCLUSIONS: TABLES 3-2 TO 3-5 AND CHARTS 3-2 TO 3-5

Transportation Infrastructure Costs

On the high-volume Toronto to Montreal route, special taxes and fees for car and bus travel equal or exceed the costs of the road used. These special taxes and fees, however, do not fully offset the total costs of infrastructure, environmental damage and accidents. For air travel, infrastructure charges do not come close to covering costs for any of the domestic routes considered. On the medium-volume and lower-volume routes, as well as for the system-wide averages, special taxes and fees for car travel do not fully cover our estimate of the total capital, maintenance and other costs (including traffic policing) of roads.

Environmental Costs

Estimates for environmental costs of train and airplane emissions per passenger-kilometre differ by route, reflecting different vehicle occupancy rates and the use of different equipment. As well, our estimates assign a higher cost to some pollutants if they are released during the summer in areas that already have problems with air quality (such as the Windsor to Quebec City corridor and the Lower Fraser Valley regions).

In terms of environmental costs, the train on the high-volume Toronto to Montreal route incurs costs that are somewhat lower than the car's and considerably lower than the airplane's, although higher than the environmental costs of bus travel. On this route, train equipment is newer and more fuel efficient, the number of seats per train is higher, and train occupancy rates are high. (In Chapter 7, we consider how the train's effect on the environment might improve with different equipment.) On the lower-volume rail routes, the train has considerably higher environmental costs than those of car, airplane or bus travel.

The environmental costs of airplane travel can be lower than those of car travel on direct longer-distance routes, as shown by the Vancouver to Toronto example. In aircraft operation, much of the noise, fuel consumption and emission of carbon dioxide and other pollutants occurs while waiting for or during take-off. For longer direct flights, therefore, environmental costs are proportionately lower than for short flights.

Total Subsidies

On all the routes considered, bus travellers come closest to paying total costs if the cross subsidies among bus passengers are set aside. The total subsidy is larger for car travellers, but still not a large portion of total costs.

Total subsidies for air travel (excluding the impact of cross subsidies among routes) are larger than for car travel on most routes, and represent an appreciable share of total costs even on high-volume routes.

Subsidies to passenger rail include direct subsidies from taxpayers and some environmental costs. Transportation infrastructure costs are paid by the rail carrier for track use and train traffic control.

Even on the Toronto to Montreal route, which for the train has the lowest amount of direct (vehicle/carrier) subsidy from others and has the lowest environmental costs, the passenger rail subsidy is substantially larger than total subsidies to car or air travel. On the other routes, train costs borne by others (primarily the federal taxpayer) are many times larger than the subsidies to car or air travel.

Conclusion

Only the bus comes close to paying its way in the passenger transportation system. Bus travellers pay almost as much in special taxes and fees charged by governments as the costs of government-provided infrastructure, environmental costs and accidents incurred by bus travel.

Both car and airplane travel have a competitive advantage over the bus, because car and air travellers pay less of the full cost of their transportation. Government charges for car and airplane travel do not fully cover infrastructure and environmental damage costs. (Environmental damage by car, airplane and bus has been limited by regulation, and car, airplane and bus travellers do pay the costs of equipment required to comply with the regulations.) Car travellers also do not fully pay for the costs that car accidents impose on the health care system.

Overall, subsidies from taxpayers for rail and ferry are the largest, on average, per passenger-kilometre.

The following chapters contain recommendations that will change many of the above costs and who pays them. In Chapter 18 we will look again at these estimates of comprehensive costs when we consider the overall impact of our recommendations.

ENDNOTES

1. In the system-average table and chart, the only negative component of the others' costs is the special transportation tax/fee. This was represented in Chart 3-1 by a shift down in the others bar by the amount of special transportation tax/fee revenues. For the individual routes, cross subsidies are another potential negative component of others' costs.

   When users pay more than the vehicle/carrier costs associated with the route used, the excess is considered a contribution from users to others (other travellers). When this occurs, the base of the others bar is shifted below the zero line by an amount equal to the sum of revenues from special taxes and fees (a negative component of others costs) and of negative cross subsidies (cross subsidies available for other travellers).

   For example, for airplane travel on the Vancouver to Toronto route (Table 3-5 and Chart 3-5), the others bar starts at –142, the sum of –19 from special taxes and –123 from cross subsidy.

   Only the positive components of others' costs are shown as explicit segments of the bar. For Vancouver to Toronto airplane travel, the positive components add to 57, which is the vertical height of the bar above its –142 base.

   In a few cases for the individual routes, the negative components exceed the positive components of costs borne by others, resulting in negative net costs. In such cases, the top of the others bar, which indicates net costs borne by others, is below the zero line. For example, again for the Vancouver to Toronto airplane travel case, Table 3-5 shows net costs borne by others of –85. The top of the others bar for airplane travel in Chart 3-5 thus lies below the zero line at –85.

CHAPTER 4

NEW DIRECTIONS: FOUNDATIONS FOR A PASSENGER TRANSPORTATION FRAMEWORK

Introduction

In Chapter 1, we discussed our approach to providing Canada with a new passenger transportation framework for the 21st century that would lead to more consistent, coherent and economically sound transportation decisions. In this chapter, we set out the foundation for this new framework, discuss its implications for governments, travellers and carriers, and suggest transition mechanisms to get from the current situation to our proposed framework.

Foundations for a New Framework

We believe that the main goal of Canada's intercity passenger transportation system should be straightforward — to move people to where they want to go. Travellers should be able to choose the transportation services they want, get what they pay for, and pay for what they get.[1]

In the past, governments have used the transportation system to pursue other public policy goals. We believe that the passenger transportation system should not be used by governments in this way, today or in the future. As well, the traveller should not be asked to pay for the implementation of broad, national goals that are properly the responsibility of the general taxpayer.

In this report, we spend much time and space discussing charges to travellers. These include fares, fees, fuel taxes and licences. We realize that many of our recommendations may seem to advocate a greater financial burden on a public already unhappy about prices

and taxes. Although this may be the appearance, it is neither the reality, nor does it represent the fundamentals of what our approach will achieve. Although Canadians may be unhappy with transportation-related prices and taxes, and be unwilling to see them increase, they are nevertheless already "paying" all of the costs of transportation in some way. For example:

- taxpayers pay a substantial portion of the cost of the infrastructure used by travellers and subsidize some carriers directly;
- people with asthma pay for low-level ozone concentrations in cities through discomfort and poor health;
- commuters pay for traffic congestion in lost hours;
- homeowners pay for car, truck and airplane noise when they cannot enjoy their homes and yards; and
- everyone pays for the general degradation of the environment.

What we advocate in this report is that those who supply and those who use passenger transportation services pay the costs of their activities. Those who do not use passenger transportation services should not have to pay for them. In addition, those who pay in non-monetary ways should gain relief or compensation. This, we believe, would be a much more equitable system than the one we have today. Our recommendations should also result in a more efficient passenger transportation system and a lower financial burden on Canadians, and would enable governments to reduce taxes with the money saved.

OBJECTIVES

We believe that Canadian passenger transportation policy will be in the forefront worldwide if it leads to a passenger transportation system that is safe, protective of the environment, fair and equitable to taxpayers and all groups of travellers, and efficient.

Therefore, we **recommend** that:

4.1 Transportation policies be guided by the following four objectives:

(a) safety;

(b) protection of the environment;

(c) fairness to taxpayers, travellers and carriers; and

(d) efficiency, so that services are provided only where the benefits to the individual traveller equal or exceed the cost, and given levels of service are provided at the lowest possible cost.

Efficiency may strike some as a rather abstract objective, of interest primarily to economists. But this is not the case; efficiency means making the best use of one's resources and opportunities or, more simply, avoiding waste. As householders know from managing their family's finances, avoiding waste will get the most out of the family's income, or — in economic terms — will maximize its benefits, given its resources.

There are three types of waste to avoid. The first type of waste occurs when people spend more than is necessary to obtain goods or services. The parallel situation in transportation policy is when more is spent than is necessary — using a more expensive capital facility than necessary, or employing more people than necessary — to produce transportation services.

The second type of waste occurs when the householder would be better off not buying (or buying less of) the particular goods or services, and instead using the money on something else. The parallel situation in transportation occurs when governments decide to spend money on a particular transportation service, even though an alternative transportation service would be more worthwhile,

or when Canadians would be better off using the money to obtain other things.

Thirdly, not spending money can also, in some cases, be a source of waste. Not spending on maintaining a car or house may require a higher level of spending in the future. For example, not spending money on a new furnace may be more than offset by higher fuel bills over time and thus constitute waste. In transportation, failure to devote sufficient resources to maintaining a road may result in having to spend much more in the future, or in a major reduction in the usefulness of the road. Failing to provide an airport in a community that has grown substantially may lose an opportunity to save major amounts of time for people travelling to and from the community. If people value the time savings sufficiently, the lack of spending on the airport would constitute waste or inefficiency.

Choosing efficiency as one of the objectives to guide passenger transportation policy simply recognizes that passenger transportation systems that avoid waste will contribute the most to Canadians' economic well-being.

Protecting the environment and maintaining safety are part of Canadians' present and future well-being. The efficiency objective can, therefore, be broadly interpreted to include achieving adequate levels of safety and environmental protection. This was the approach we took in our Interim Report. For greater clarity, we identify environmental protection and safety as separate objectives.

What about other objectives? We agree with those Canadians who told us that nation-building and regional development should be objectives of the various levels of government. We also believe that these objectives can be pursued through a variety of policies.[2] We do not agree, however, that passenger transportation policies should be guided by objectives of nation-building and regional development. Our reasons are as follows:

Nation-building: In general, the passenger transportation system is mature, and most Canadians are well served by a number of modes. We do not believe that any single project, route, network or mode is likely to stand out today, as the transcontinental railway once did, as a symbol that unites Canada. We doubt that any new passenger transportation mega-project would contribute to building the nation, beyond its economic contribution, which can be assessed using normal criteria.

To be sure, there is a need to bind Canada together, but we believe that individual Canadians — aided by volunteer organizations and government departments other than transportation departments — can most effectively carry out the task of binding the nation together.

Regional development: We recognize that passenger transportation infrastructure and services can play a vital role in the development and functioning of national and regional economies. As we suggest in our efficiency objective, the benefits of infrastructure and services to travellers should be compared with costs when decisions on passenger transportation projects and services are made. From our research and consultations, we concluded that the separate and additional regional development benefits that may be derived from government expenditures on passenger transportation are unlikely to be substantial and should not be used to guide passenger transportation policies. Our reasoning is threefold.

First of all, passenger transportation projects and services that are likely to contribute to regional development will pass the benefit-cost test under the efficiency objective. The benefits that regions gain from passenger transportation projects, other than those associated with benefits to travellers, are generally limited. In almost all the populated parts of Canada, the basic passenger transportation infrastructure already exists. Adding more or improved infrastructure, if that does not increase traveller benefits more than costs, is a questionable means of stimulating development. Half-empty roads and underused airports would be the likely result.

Secondly, we recognize that regions may realize short-term economic gains from construction activities associated with passenger transportation projects, but these activities do not have the same economic effect today as they did in the past. Construction is increasingly automated, and equipment and materials are often purchased from other regions.

Furthermore, non-transportation projects also require construction. We do not believe that transportation projects should be singled out by governments for subsidies in order to carry out regional development objectives for which they are not designed.

Finally, under the terms of our mandate, we are to consider long-term passenger transportation policies for 30 or more years into the future. We have therefore focussed on the benefits that will continue many years after projects are completed. Projects not supported by a review of the needs of travellers, and the benefits to them, place a long-term drain on financial resources that could otherwise be positively used for the development of Canada or its regions.

Therefore, we **recommend** that:

4.2 Governments pursue nation-building and regional development objectives through other programs, rather than using the passenger transportation system.

If governments decide to pursue nation-building, regional development or any other objectives through the passenger transportation system, taxpayers in the jurisdiction that makes the decision should pay the cost of such programs, rather than those who use the passenger transportation system. As well, governments should let the public know why they are providing such subsidies and at what cost. We strongly believe that the use of subsidies should be the exception, not the rule.

PRINCIPLES FOR TRAVELLERS

How can we translate our four objectives into operational principles? Our broad goal is to move people to where they want to go, using any means for which they are prepared to pay, but avoiding waste. That is, we want a passenger transportation system that is safe, protects the environment, is fair to taxpayers, travellers and carriers and is efficient.

In many circumstances, market forces are a reliable guide for achieving the best use of resources. Market prices provide important signals about the kinds of travel services that travellers want, and competition provides an important discipline on those who provide these services. To prosper in a competitive environment, firms must respond to travellers' preferences, cut costs, improve productivity and innovate — all of which contribute to increased efficiency. Relying on market forces will also contribute to fairness. Individual travellers will pay for the choices they make, and they will pay the full costs of their travel without help from the taxpayer or other travellers.

The principles flowing from our four objectives have four thrusts. First, for much of Canada's history, transportation has played a nation-building or developmental role and Canadians have come to regard it as a public service like national defence, rather than a business like a hotel or restaurant. Too often in transportation, there has been a failure to appreciate the benefits from competitive markets — and the costs of restricting competition. Therefore, one of the main thrusts of our principles is to achieve the benefits from treating transportation like any other business where people buy and sell services, instead of as a government function. We have to identify areas, both in the activities of carriers and the providers of infrastructure, where there would be benefits from a greater reliance on competitive markets.

Second, treating transportation as a business will not work in all circumstances. Therefore, a second thrust of our principles must be

directed at those areas where the market does not work very well — where it would not provide adequate levels of safety or environmental protection or where it would not be efficient or fair to travellers or taxpayers.

If carriers and providers of infrastructure do not have to take account of the impact of their activities on the environment and the health care system, the prices they charge can result in Canadians travelling by polluting or dangerous means of travel because it is cheap. Governments can correct this by ensuring that environmental and health care costs are taken into account by carriers, infrastructure providers and travellers.

In some cases, particularly for airport and highway infrastructure, it may not be possible to have more than one provider. When services or infrastructure are provided under these monopoly conditions, providers might charge prices that are too high or might not provide the service that travellers want and are willing to pay for. Governments can take steps to ensure that the services provided and the prices charged to travellers are similar to what might be expected if competition did exist.

A third thrust of our principles is directed at those situations where leaving passenger transportation to operate in a business context would have unacceptable results and must, therefore, be modified to take account of an important public interest. Although "public interest" is a vague and potentially all-encompassing term, our focus is specific. We believe that government intervention is necessary in two circumstances:

- to take care of the special transportation needs of people with disabilities; and
- to help firms and travellers who would be especially disadvantaged by an abrupt introduction of market forces to adjust to a potentially dramatic change in their operating environment.

The fourth and final thrust of our principles must be to ensure that government fulfils its role in a responsible manner. An informed public is the best check on governments. We believe there is a need for political decisions on transportation to be transparent, so that taxpayers and travellers can make informed choices. Some specific changes could help:

- Decentralization may contribute by providing those affected by government decisions with an increased say in those decisions.
- Those making decisions could be more effectively held accountable if taxpayers and travellers better understood the implications of decisions.

Our principles must impose greater responsibility for achieving our objectives on all the participants in the intercity passenger transportation system — travellers, carriers, providers of infrastructure, governments and their agencies.

These objectives will be best achieved if the passenger transportation system is supported and maintained by those who use it. Travellers should pay for the travel services they use. People who do not travel should not have to pay for those who do.

Therefore, we **recommend** that:

4.3 Each traveller pay the full cost of his or her travel, and travellers, in total, pay the full cost of the passenger transportation system, including those costs related to protecting the environment, safety and accidents.

We recognize that some Canadians may not be able to pay for the transportation they require. In general, when people need financial assistance to travel, this help should be provided to them through

general or specific assistance programs, not by charging other users of the passenger transportation system.

In some cases, such assistance may still not make transportation services available to all. For example, although some people with disabilities could receive financial assistance to pay for travel, they may still lack physical access to passenger transportation services and infrastructure. Carriers and providers of terminals have a responsibility to provide accessible passenger transportation and should have a caring attitude toward people with disabilities.

Therefore, we **recommend** that:

4.4 Travellers with physical or mental disabilities have opportunities similar to those enjoyed by all Canadians to use public passenger transportation.

PRINCIPLES FOR CARRIERS

We believe that passenger transportation carriers should provide services in a competitive environment, operating under the same commercial principles, economic forces and general rules as most other businesses in the Canadian economy. They may, however, also be subject to government rules designed for transportation, such as those associated with safety or environmental protection. As long as these carriers are charged appropriately for safety, accident and environmental costs, competition in the marketplace should be relied upon to determine the most efficient pricing and investment decisions.

Therefore, we **recommend** that:

4.5 Competition and market forces be the prime agents in providing viable and efficient carrier services:

(a) anyone "fit, willing and able" to supply passenger carrier services have an opportunity to do so;

(b) carriers (including private car and private airplane owners) pay their share of the full cost of the terminals, links and traffic control services that they use, as well as any costs related to environmental damage, safety and accidents;

(c) as long as they are willing to pay their share of the costs, carriers have equal access to terminals, links and traffic control services; and

(d) anyone providing carrier services be able to withdraw these services, without undue delay, but with adequate notice to the public.

PRINCIPLES FOR PROVIDERS OF TERMINALS, LINKS AND TRAFFIC CONTROL

Terminals such as airports, links such as roads or railway tracks, and related services such as traffic control are essential for getting travellers to where they want to go. Carriers and travellers told us that if they are going to be asked to pay the full cost for these terminals, links and traffic control services, they want to be sure that what is provided is only what is needed, no more, no less. We agree.

Therefore, we **recommend** that:

4.6 Terminals, links and traffic control services be priced on a terminal-by-terminal, link-by-link and service-by-service basis.

We recognize that prices could also be determined by averaging across a number of links or facilities, and that, in the short term, this type of pricing may be the most feasible approach in cases such as roads.

In some circumstances, prices can be determined through market forces, as happens when one airport faces competition from a nearby airport, or when a user of a facility is in a strong bargaining position with the provider of the facility, such as a dominant airline's relationship with some airports.

Therefore, we **recommend** that:

4.7 Where there is sufficient competition, or where users are in a strong bargaining position with providers of terminals, links or traffic control services — and so long as there are appropriate charges for environmental damage, safety and accidents — competition and market forces be relied upon to determine prices and investment decisions for passenger transportation infrastructure.

Where terminals, links and traffic control services are provided on a monopoly or near-monopoly basis, market forces cannot be relied upon to determine prices. Monopolists can charge prices above costs and normal profits, or inflate costs by over-building. Where competitive forces are not sufficient, or where users are in a weak bargaining position, governments, as referees, must regulate prices and investment decisions on an intermodal basis.

Therefore, we **recommend** that:

4.8 Where regulations are required, they be designed to ensure that pricing and investment decisions be similar to what would otherwise occur through competitive market forces. Specifically, we recommend that:

(a) prices reflect the traveller's or carrier's use of each terminal, link or traffic control service and be designed to encourage neither over-use nor under-use. Where such prices do not recover the full cost, we recommend that they be adjusted to provide for full cost-recovery in such a way as to minimize the loss of efficiency; and

(b) investments be made only in those projects where benefits to travellers exceed costs and that yield the highest level of benefits over costs, regardless of mode. In making investment decisions, all costs, including safety, accident and environmental costs, as well as interest on funds invested, should be taken into account; adequate provisions should be made for maintenance; new technologies should be considered along with existing technologies; and full consideration should be given to the potential for intermodal operations to contribute to efficiency and ease of travel.

Implications for Governments

FUNCTIONS OF GOVERNMENT

We have said that competition and market forces should be the prime agents in developing a viable and efficient passenger transportation system. There are some functions in the passenger transportation system, however, that can only, and should only, be performed by governments.

Governments should be responsible for:

- establishing policies in relation to the framework — setting policy with respect to transportation agencies, establishing guidelines for project evaluations, notably for the assignment of joint costs to modes and user classes, taking a cross-modal view of transportation issues and coordinating the development of environmental and safety policies with respect to transportation;
- standards setting and enforcement — imposing safety and environmental standards, and applying charges to reflect the costs of environmental damage;
- data gathering and reporting — setting reporting requirements, and presenting data in a way that allows ready comparison by users among the various modes of transportation;
- research — together with providers of services, governments finance and carry out selected research on passenger transportation (the results of much passenger transportation research cannot be patented or sold but are of public benefit);
- maintaining competition — ensuring that carriers do not engage in anti-competitive behaviour (for example, by guaranteeing equal rights of access by carriers to terminals, links or traffic control in cases where failure to provide access could restrict competition, especially where carriers own the terminals or links, such as railway tracks or bus terminals); and
- regulating monopolies — regulating pricing and investment decisions of terminals and links that are provided on a monopoly or near-monopoly basis.

Therefore, we **recommend** that:

4.9 Governments be responsible for establishing policies in relation to the framework, setting and enforcing standards, gathering and reporting information to the public, ensuring a sufficient level of research, maintaining competition and regulating monopolies.

ASSIGNING RESPONSIBILITY TO LEVELS OF GOVERNMENT

We believe that assigning responsibility to the level of government closest to the people is consistent with our objectives, since our approach does not require that transportation responsibilities be assigned to particular levels of government — whether federal, provincial, territorial, regional or municipal.

In some cases, benefits or costs may extend beyond the boundaries of one jurisdiction. Only a higher level of government, or governments acting jointly, may be able to ensure consistency. At a minimum, cooperation among the different levels of government that have responsibilities for establishing the framework, making the rules, and refereeing would be required.

In other cases, the delegation of powers or jurisdictional modifications might be required. If formal constitutional change is needed to meet our objectives, then governments should consider implementing such change.

Therefore, we **recommend** that:

4.10 Decision making authority of governments be assigned to the level of government that is both closest to the people and most able to efficiently exercise such authority.

EQUAL TREATMENT OF MODES

When governments collect taxes for general revenue purposes — a general sales tax as opposed to charges to travellers — they should tax all modes of transportation on the same basis.

When governments impose charges to pay for infrastructure and services that are government-owned, the charges should reflect the efficient cost of providing the infrastructure or a service, and the revenue from the charges should be used for that purpose.

Governments should levy charges to cover any other costs that transportation activities impose on society, whether the activities arise from operations of a publicly or privately owned carrier, facility or service. Where regulations are used in place of charges, they should impose similar obligations on each mode.

Therefore, we **recommend** that:

4.11 Governments tax and regulate all modes equally.

ACCOUNTABILITY

Those responsible for making and applying the rules and for spending taxpayers' money should be accountable for their actions to these same taxpayers. Governments should improve such accountability through transparency — making relevant information available and understandable.

When governments consider providing taxpayer subsidies, such subsidies should be openly debated and visible. Full disclosure of the costs of the system — revenues, subsidies, who pays and who

benefits — will help people to make their own transportation decisions and to judge those made by governments. Disclosure will also provide a mechanism that enables the public to hold government agencies accountable.

Therefore, we **recommend** that:

4.12 Decision making be transparent so that Canadians understand why governments or their agencies make the passenger transportation choices they make, and so that those making decisions can be held accountable.

Transition Mechanisms

We recognize that today's passenger transportation system is a long way from embodying the objectives and principles outlined in this chapter, and that such a passenger transportation system could not be achieved at once.

Immediate action to implement the new objectives and principles could lead to sharp price increases that travellers would consider unreasonable, or could jeopardize the viability of a carrier or a particular carrier service, terminal or link. Time may be needed to allow prices to adjust, and to permit current service levels to be reduced, or otherwise modified, to match demand at an unsubsidized price. Governments will also need time to assess environmental and social costs. Any transition assistance should be subject to strict guidelines.

Therefore, we **recommend** that:

4.13 In cases where time is required to ease the problems caused by steep price adjustments, or where a carrier, a particular carrier service, a terminal or a link is given another chance to survive within the new framework, financial assistance be designed to encourage adjustment. Such assistance should be:

(a) given, where possible, to move people in the most efficient way, regardless of mode;

(b) provided and managed by the level of government responsible for the mode;

(c) borne by general taxpayers in the jurisdiction that makes the decision, not by other transportation users; and

(d) provided on a declining basis, for a predetermined, reasonable adjustment period, and then terminated.

4.14 If a carrier, a particular carrier service, a terminal or a link cannot survive despite a reasonable period of time for adjustment, the terminal or link be closed or the service discontinued.

Carriers and providers of terminals, links and traffic control services should be given maximum flexibility from regulation in order to adjust fares and the frequency and quality of service. This flexibility should also permit substituting services that use another mode of transportation.

Conclusion

Establishing the foundations for a new framework and the transition mechanisms required to achieve them are only first steps toward solving transportation problems. We must emphasize that these first steps are essential if Canadians are to make the right decisions in the future.

In the following chapters, we apply our approach to a range of issues in intercity passenger transportation.

ENDNOTES

1. The test of "demand" should be the price that travellers are prepared to pay and the test of "supply" should be the amount that would be provided in a competitive market, when all costs are taken into account.

2. If, for example, governments decide that it is desirable to encourage students to travel around Canada by subsidizing 20 percent of their fare, this could be accommodated by the transportation system but we do not view it as a transportation policy. The cost should be ascertained and the full cost should be paid to the passenger transportation system by all taxpayers. The passenger transportation system and its travellers should not have to shoulder the burden for a nation-building policy that governments feel benefits all Canadians.

CHAPTER 5

TRANSPORTATION INFRASTRUCTURE: INVESTMENT AND PRICING

INTRODUCTION

One of our objectives for the national passenger transportation system is fairness to users, carriers and the general taxpayer. We believe that fairness cannot be achieved if the current system of payment for government-provided transportation infrastructure remains in place. This system gives some modes a competitive advantage over others, and often means that the general taxpayer, who may not travel often or at all, pays for Canadians who do. As we stated in Chapter 4, our principles are that:

- each traveller pay the full cost of his or her travel, and travellers, in total, pay the full cost of the passenger transportation system, including those costs related to protecting the environment, safety and accidents (Recommendation 4.3);
- carriers (including private car and private airplane owners) pay their share of the full cost of the terminals, links and traffic control services that they use, as well as any costs related to environmental damage, safety and accidents (Recommendation 4.5b); and
- as long as they are willing to pay their share of the costs, carriers have equal access to terminals, links and traffic control services (Recommendation 4.5c).

We also believe that pricing to cover full costs, when applied intelligently, can offer major benefits in addition to fairness among different groups of users and between users and general taxpayers. Pricing can:

- help ensure that existing infrastructure is used in a way that offers the greatest economic benefit to Canada;

- provide valuable guidance for new investment decisions; and
- provide a basis for decentralizing the operation and management of infrastructure. In the absence of prices for outputs and inputs, it is difficult to give local management the power to decide how many and which services to offer, and which combination of resources to use in the production of services. Decentralization provides greater flexibility to meet local needs and can encourage managers to achieve the lowest cost for operations.

We emphasize that our approach to pricing is not designed to provide infrastructure providers with a means of passing any and all costs on to users. Rather, our approach is designed to ensure that costs are subject to greater discipline and that operating efficiency is increased.

We also want to reiterate that the costs we are discussing are already being paid. They are not new costs. Our concern is that the taxpayer, who may or may not travel, not be saddled with expenses that benefit those who do travel. While our framework will raise the cost to the traveller, we expect that it will lower the burden on the taxpayer.

In this chapter, we explore the costs of transportation infrastructure, how investment decisions should be made to ensure that the appropriate amount of infrastructure is in place, and methods for setting charges. In Chapter 6, we discuss access to infrastructure and the institutional arrangements for its ownership and management.

Transportation Infrastructure: An Overview

COMPONENTS OF THE TRANSPORTATION SYSTEM

As we noted in Chapter 2, transportation infrastructure refers to the non-carrier component of the intercity transportation system: terminals, links, and traffic control systems (Table 5-1).

Table 5-1
COMPONENTS OF THE TRANSPORTATION SYSTEM

Mode	Carrier	Infrastructure		
		Terminals	Links	Traffic control
Road	Cars	Car parking	Roads (including bridges)	Police, road signs and signals, traffic control laws and regulations
	Buses	Bus terminals		
Air	Airplanes	Airports (including runways)	Air navigation systems	Air traffic control
Rail	Trains	Stations	Railway tracks	Dispatch, signal systems
Water	Ferries	Ferry terminals (including wharves and ferry slips)	Waterways and canals (including navigational aids)	Vessel traffic services

Today, the federal, provincial and territorial governments own and manage most of Canada's intercity transportation infrastructure. The federal government supplies airports, air navigation and air traffic control, and services for water links. Provincial and territorial governments design, build and manage roads and highways. Some carriers own and manage rail tracks and terminals, most bus terminals and some ferry terminals.

CAPITAL AND OPERATING COSTS

System-wide cost estimates for passenger transportation (Table 3-1, Chapter 3) show that the capital and operating costs of transportation infrastructure are $6 billion per year or, on average, 14 percent of the total cost of intercity travel. This estimate includes an "interest charge,"[1] as well as depreciation on the existing physical capital. Our estimates, however, are only approximate. Governments, which build and own most infrastructure, rarely keep records that show the value of the infrastructure. Our estimates are intended to reflect current replacement costs.

In most cases, intercity travellers share passenger transportation infrastructure with other users. For example, freight and passenger motor vehicles, as well as urban and intercity travellers, use the

same roads. It is often difficult to allocate infrastructure costs accurately among the different users. In our calculations, we have allocated the following percentages of infrastructure costs to intercity passenger transportation:

- 70 percent of the intercity road network to passenger vehicles;
- 84 percent of airports and the air navigation system to commercial passenger aircraft;[2]
- 2 percent of the rail network to passenger rail; and
- 12 percent of selected government expenditures for marine links and control systems (primarily aids to navigation and coast guard services) to passenger travel on ferries.

Making Investments in Transportation Infrastructure

PRIVATE-SECTOR INVESTMENT DECISIONS

Private-sector companies base their transportation infrastructure investment decisions on expected profitability and a return on their investment. We believe this criterion is appropriate as long as these firms are not making monopoly profits that distort their decisions, and are taking all costs into account, including those related to environmental damage, safety and accidents.

GOVERNMENT INVESTMENT DECISIONS

In the past, governments have often used transportation as a tool of public policy, making investment decisions that served political, economic and social goals in addition to transportation goals. We believe such goals are inappropriate for the passenger transportation system of the future. Today's passenger transportation system is now mature, and Canadians in most of the country are served by several modes of transportation. Although there may be some areas where new investment is required for expansion, most expenditures

are now made to maintain, replace, and upgrade infrastructure. We believe that infrastructure expenditures, if they are to be made by government at all, should, from now on, be made only if they are expected to provide a return on investment.

Two factors determine a return on investment: benefits and costs. While the total expected cost of an investment project is often easy to calculate, the expected benefits are much more difficult to estimate. The benefits for private-sector projects are based on expected increased revenues and cost savings from the investment. Revenues are determined by what people will pay for the new good or service and by how much of it they will purchase.

What are the benefits of a new road or an airport terminal? How can they be calculated? Under our principles, users should pay for what they use, and the price they pay should cover all costs, including those associated with environmental damage, congestion and safety measures. We believe that governments should measure benefits using the same yardstick as that of the private sector: the prices users are willing to pay and the revenues that the infrastructure is expected to generate.

The Principles of Infrastructure Pricing

The total costs of transportation infrastructure are substantial. At the same time, adequate infrastructure is essential if efficient transportation services are to be available. Excessive infrastructure is wasteful because the resources used could have been used to produce other needed goods and services. In the case of government ownership, excessive infrastructure is thus an unnecessary burden for taxpayers. Yet too little capacity, or capacity of the wrong type or in the wrong place, is also wasteful since it causes delays in the movement of people and goods. These delays reduce the ease of travel, add to the uncertainty and costs of doing business, and thus reduce Canada's productivity and competitiveness.

EFFICIENT PRICING

Efficient prices = prices that lead people to travel without wasting resources or losing opportunities

Efficient prices encourage people to use the road, rail, air and water modes in a way that does not waste resources or opportunities. These prices are also fair if users who are responsible for the same level of costs pay the same amount.

When travellers must pay for all of the costs incurred in producing transportation services, they will balance their use of these services against their costs. They will not use a facility more than they need to, because this wastes their money; nor will they use a facility less, since this wastes an opportunity.

Charges to travellers also test the public's willingness to pay for infrastructure investment. Over time, the capacity of transportation infrastructure requires expansion, contraction or change. Governments should use consistent rules to evaluate new investment projects. Charges provide a means of developing such rules by measuring Canadians' desire for expanding, changing or reducing the capacity of infrastructure or the size of transportation networks.

MARGINAL COST

Marginal Cost as a Starting Point

An important starting point in establishing prices for transportation infrastructure is the marginal cost — the additional cost that occurs when there is an increase in the amount used of a product or service, such as a road or a runway.

Marginal cost	**=**	**the additional cost that results from a small increase in the amount provided of a product or service**
Example of a marginal cost:		**the cost for the wear imposed on a road every time a vehicle uses the road**

For example, the marginal cost of a road is the cost of the wear on the road incurred each time a vehicle uses the road. If operators of vehicles do not pay for the damage they inflict to the road, they have no incentive to reduce vehicle use or to switch to less-damaging vehicles. Generally, when users do not fully pay for the marginal costs of infrastructure — that is, when they face a lower charge than the costs they impose — their transportation choices cost the economy more than the return or value they receive. In our example, if users do not pay for damage to roads, they may choose to make an unnecessary trip, or use a vehicle that is cheaper to operate but causes more road wear. The benefits of such trips to the user are small, but the costs to the taxpayer may be substantial.

Operational Limitations in Applying Marginal-Cost Pricing

For many types of transportation infrastructure, as in other public utilities such as electrical power and telephone services, marginal costs are difficult to estimate or apply. There are four reasons for this:

First of all, marginal cost may be difficult to measure. For example, analysts may not agree on the amount of damage that heavy trucks impose on different types of roads.

Secondly, marginal cost may vary with circumstances. For example, the amount of damage trucks cause to roads may increase during spring thaw. Or, the cost of handling additional passengers in a terminal may increase if the terminal is already at the normal level of use and extra staff have to be hired. If these variations in cost are

predictable, it may be possible to vary prices to match the variation in cost — although changing prices may involve added complexity for the operator of the facility, and for users. Not all such variations in costs, however, are predictable, and transportation providers may not be able to set prices easily or accurately.

Thirdly, electronic technology is sometimes able to provide instantaneous information on variations in cost, and to identify the amount of use by individual users at any given moment. Although users are sometimes in a position to respond to varying prices, there are many circumstances in which fine-tuning prices to match variations in marginal costs is impossible, or not worth the inconvenience to suppliers and users. For example, it may be possible to keep track of variations over the day in the cost of producing electricity — as different cost sources of supply are used. But, for a household, as opposed to a large industrial user, it might not be worthwhile to keep watching the (hypothetical) price meter and adjusting use of electrical appliances as the price changes over the day.

Finally, even where marginal costs can be measured with some precision, infrastructure providers sometimes find it difficult to collect charges from users. Roads, especially those other than limited-access highways, are a good example of this. The main method of charging directly for road use is a type of toll booth. But toll booths, unfortunately, produce additional costs for the road owner and delays for the users. These additional costs would be especially large, relative to the costs of use of the road itself, for short trips using road systems with frequent access points and intersections. For these reasons, toll roads have been the exception rather than the rule, and — if used at all — are used only on limited-access highways. Instead, governments use fuel taxes, which can only be related approximately to the amount of road use and its costs, as the principal means of charging drivers for road use.

Developments in electronics may eventually make it possible, without great expense or invasion of privacy, to identify moving vehicles on a segment of road, and then charge for use. This might be done

using an electronic card, for which credit balances could be purchased, and which was automatically debited by signalling devices in, on, or near the road.

PRICING TO RECOVER TOTAL COSTS

When Marginal-Cost Pricing Causes Deficits

An important further limitation in applying marginal-cost pricing is financial, rather than operational. In many cases, it costs a substantial amount to provide a basic level of infrastructure such as a two-lane highway or an airport large enough to handle certain types of aircraft. The marginal costs associated with additional users, however, may be small.

Example of how marginal-cost pricing can result in a deficit:

- **A facility serving 100 users costs $1,000 per day, for an average cost of $10 per user.**
- **It costs only an additional $5 to provide service to each user after the first 100 users.**
- **If there are 200 users a day, the total cost is $1,000 for the first 100 users and $500 for the additional 100 users. The total is $1,500, or an average cost of $7.50 per user.**
- **If the price for all users is set at the marginal cost — $5 — revenue would be only $1,000, resulting in a deficit of $500.**

Transportation infrastructure pricing involves a difficult choice when marginal cost is less than average cost, a situation that can arise when producing the service requires an expensive basic facility whose capacity can be expanded cheaply. To charge more than marginal cost is not efficient because some potential users, who would have been willing to pay the marginal cost and who would have gained from using the facility, would not do so at the higher price. This non-use means a loss to the economy. And yet setting the price equal to marginal cost means a financial deficit in operating the facility.

If a government decided to set prices equal to marginal costs, and to accept the financial deficit, general taxpayers would then be financing the deficit and would in effect be paying for a part of the provision of benefits to users. The results of this are:

- a transportation system that violates our principle of fairness to taxpayers, users and carriers;
- a need for higher general taxes, which causes distortions in price-cost relationships elsewhere in the economy that will, in turn, cause losses of benefits to the economy; and
- pressures for government intervention into the management of that infrastructure requiring subsidies. Such intervention may reduce the pressures for cost efficiency that would occur if the infrastructure was run on a more commercial basis.

As well, in making investment decisions to add or close infrastructure, it is necessary to test how much users value the basic infrastructure, not just how much they value additional amounts of service or use. Marginal-cost pricing does not provide a complete test.

On balance, we favour a policy under which users pay the full cost of the infrastructure they use, assuming that such costs are no higher than necessary. In many cases, this policy of full cost recovery may require prices to be set above marginal cost.

Pricing to Avoid Deficits

There are several ways of pricing that enable infrastructure owners to achieve full cost recovery:

Setting prices equal to average costs: This approach is not as simple as it appears. There may be different categories of users, such as vehicles that take up different amounts of space and/or have different weights. The average cost could be calculated by the total cost divided by number of vehicles, by total square metres occupied by

all vehicles, or by total weight of all vehicles. Each calculation would result in different charges for each category of vehicle, and thus in a different pattern of use.

Determining responsibility for costs: Careful consideration of costs associated with different types of users may provide a better basis for allocating total costs than some simple average. For example, if heavier or larger vehicles require a road or runway to be built to a higher standard, the extra costs of building to the higher standard can be assigned to heavy vehicles when setting prices. If more capacity is needed to serve users at peak periods, these users can be charged an additional amount to cover the extra cost.

Pricing according to benefits: Prices incorporating costs that can be directly attributed to particular groups of users may still not cover total costs. One could set prices in a way that least reduces the use of the infrastructure and thus minimizes the economic loss associated with a reduction of use. If this were done, the benefits obtained by various users, as well as the costs for which they are responsible, would determine the price.

One option is to use a mark-up over marginal cost that varies with the extent of benefit. The benefit could, in principle, be measured by how much the use of the facility by a group of users declines as the price increases. The smaller the decline, the more the group appears to value the benefit of use. This option is related to the practice known as "value of service pricing" or "charging what the market will bear." Railway companies, whose average costs are generally higher than their marginal costs, traditionally use this type of pricing when setting freight rates for different categories of products.

Our principles do not support unconstrained charging of what the market will bear. Rather, we intend that infrastructure providers charge a sufficient amount to cover full but efficient costs.

Two-part pricing: With this approach, infrastructure providers charge one amount for the right to use a facility — such as an annual fee — and a second charge on a per-use basis. This system is found at some golf courses that charge an annual membership fee as well as "green fees" for every round of golf played. A transportation example of two-part pricing is the annual car licence fee, coupled with a fuel tax that varies according to use. The per-use fee can be set at, or moderately above, marginal cost, and the annual fee can be used to cover the gap between total cost and revenues generated by the per-use charges. The annual fee may also differ across classes of users, depending on the benefits that each group derives from the infrastructure.

Recommendations for Pricing

As part of Recommendation 4.8 (Chapter 4), we propose that prices be set to encourage neither over-use nor under-use of transportation infrastructure. In addition, we suggest that where such prices do not recover full costs, they be adjusted to cover this cost so as to minimize the loss of efficiency. In this chapter, we have argued that setting prices equal to marginal costs encourages the appropriate amount of use of a facility. We have also discussed the general options available to achieve full cost recovery where setting prices equal to marginal costs would not cover total costs.

We realize that infrastructure owners will be required to make shrewd assessments when selecting appropriate prices for individual facilities. They will have to decide how far to go in developing finely tuned prices by balancing the benefits of more accurate incentives against the costs of greater complexity in compliance and administration. Those who wish to raise prices above marginal-cost prices must assess which pricing approach will least discourage use. At the same time, they must decide on the fairness of imposing different prices on various groups of users. We believe that marginal cost should be the starting point to guide transportation infrastructure pricing policy. Where required to achieve full cost-recovery, mark-ups over marginal cost and/or entry fees should be set, taking account of benefits to different classes of users.

PRICING NETWORKS

Two types of transportation infrastructure — links and terminals — can be grouped into networks. For example, the road links in the Trans-Canada Highway make up a network, as do the road links in the non-urban road system of a province or territory, the route links in the air navigation system, or a group of airports used by commercial air carriers.

When owners provide a network of links or terminals, they tend to apply a common pricing formula to the entire network or major portions of it, rather than set individual prices based on the costs and demands associated with each link or terminal. For example, motor fuel taxes, which we view as the main charge for the road network, have a common basis within a province. For a given type of vehicle, the effective charge is almost constant per kilometre travelled, and does not vary with the cost of, or demand for, the section of road being used. Another example is the Air Transportation Tax, which is the primary charge for the air navigation system. It is not closely related to costs of, or demand for, the air navigation services provided on particular flights since it is a charge on each passenger and results in higher charges for larger airplanes.

The Stand-Alone Approach

Under our principles, travellers and carriers should pay the cost of the infrastructure they use. Should this coverage of costs apply to the network as a whole, or to as small a segment of the network as is practical?

In Chapter 4, we stated our preference for the stand-alone approach — users pay link by link or terminal by terminal.

The stand-alone approach is consistent with the principle that individual travellers and carriers pay the costs of infrastructure provided for their use. It also eliminates cross subsidies from one link or terminal to another, either within a mode or between modes.

Individualized pricing tests users' willingness to pay, and provides valuable information for decision makers who are considering the addition, expansion, or abandonment of links or terminals. If prices are set on a network-average basis, potential users of a proposed high-cost link or terminal may want its construction even though its benefits would not be worth its full costs. They know that such an addition will have a minimal impact on the network's average cost, which is all they will have to pay.

Prices related more closely to actual costs send the right economic signals to travellers in their choices of route. For example, the wear imposed by heavy trucks on roads is substantially less on main highways that are built to higher standards than it is on secondary roads. If a standard charge per kilometre for a given type of vehicle is applied, equal to the average cost of wear by that type of vehicle over the whole network, the charge will be greater than the actual cost of wear on main highways and less than the actual cost of wear on the secondary roads. The failure to relate charges to actual costs will tend to lead truck operators to choose routes that are inefficient to the economy when all costs are taken into account.

Setting average prices over networks consisting of high- and low-cost routes can also lead travellers to a choice of modes that is not beneficial to the economy. If such prices are different from route costs, users on a given route may be induced to choose a mode that has higher costs to the economy for that route.

The arguments in the preceding two paragraphs are subject to exceptions. These arguments are based on prices being better aligned to marginal cost under the stand-alone approach. However, given the frequent need for a mark-up over marginal costs to cover full costs, and the fact that the required mark-up may vary from link to link or terminal to terminal, prices under a stand-alone system may not always be closer to marginal costs for the different units than under a network-average pricing system.

Current practices in individualized pricing, and the practicality of moving toward such pricing, differ substantially across the modes and the various facilities that they use. For example, bus terminals are effectively priced on an individual basis, while a user of the road system generally pays an almost constant charge per kilometre for a given vehicle anywhere within a province.

In the following sections, we apply our general pricing principles to the terminals, links and control components in the different modes and discuss how far and how fast the stand-alone approach might be implemented. We do not illustrate potential charge levels. We discuss charges for environmental and accident costs in Chapters 7 and 8 and draw overall conclusions in Chapter 18 as to the set of charges that users of a mode might pay.

Applying the Principles to Terminals

BUS TERMINALS

Current pricing for bus terminals is close to the stand-alone approach that we recommend. In many cases, intercity bus companies own the terminals and face the full cost of providing services. Where municipalities own terminals, the terms that individual carriers negotiate likely reflect some combination of the costs of using a terminal and the benefits of that use to the carrier.

Bus terminals vary in size and, in a few cases, are integrated with terminals for other modes of intercity transportation. For example, the terminal can be a simple passenger pick-up and drop-off point next to a rural gas station or urban hotel. In other cases, central bus terminals in major cities provide passengers with a substantial range of supplementary services ranging from restaurants to newsstands.

Under our principles, there should be open access to essential infrastructure for all carriers prepared to pay for their cost. We believe that in most locations potential operators have sufficient options to

obtain space in, or to create new, terminal facilities. We are not concerned about monopoly power in such situations. In cases where access to a single terminal is of critical importance, however, a referee may be desirable, especially where the terminal is also owned by a major carrier. Federal legislation and policy on competition provide some protection of access rights for competitors when a major carrier owns a terminal, but such rights may require reinforcement.

RAIL STATIONS AND FERRY TERMINALS

Rail stations and ferry terminals, which are also frequently owned by carriers, do not raise any issues additional to those we have addressed concerning bus terminals.

AIRPORTS

Current Pricing

Transport Canada owns and operates the majority of Canadian airports serving scheduled air carriers. The primary charges are landing fees set according to a schedule that varies little from airport to airport. The federal government has also allocated a share of revenue from the Air Transportation Tax to cover the costs of the entire airport network. Revenues from concessions at airports also cover some airport costs.

The recent federal initiative to lease Transport Canada airports in Vancouver, Calgary, Edmonton and Montreal to newly created Local Airport Authorities (LAAs) should help move airport pricing in a direction that is more consistent with our pricing principles. The LAA airports will, after a brief transition period, have to recover full costs from users, including operators of concessions. The LAAs will not receive any share of the Air Transportation Tax and will set landing fees and possibly passenger facility charges according to their individual requirements.

Once an airport terminal is built, marginal costs for use by an additional aircraft with passengers are often low. Therefore, charges should also include some amount for the value of the service provided to the passenger. Aircraft weight may be a reasonable indicator of this value.

At airports, the demand at peak periods can strain capacity and may lead to expensive investments for expansion. In such cases, higher prices for peak-period users — aircraft and/or passengers — could encourage the highest-value use of the existing infrastructure and provide a test of the value that users attach to expansion investment.

Applying the Stand-Alone Approach

To find out how charges would vary by type of airports, if all airports operated on a stand-alone, full cost-recovery basis, we obtained estimates of the full costs attributable to commercial aviation at 98 airports owned by Transport Canada, as well as the current revenues obtained from landing fees and terminal charges. Table 5-2 presents these estimates for five categories of airports:

I. Vancouver and Toronto (which are the two largest airports and the ones currently closest to full cost-recovery).

II. The next six largest airports (in passenger capacity).

III. The next 20 airports (in passenger capacity). These airports were designed to handle more than 200,000 passengers per year.

IV. Twenty-six airports (generally serving smaller cities and towns, but oriented to scheduled commercial aircraft).

V. The remaining airports that also serve smaller cities and towns. (These airports are often in northern areas; some are not oriented primarily to commercial aviation. The estimated costs per commercial passenger for this group are less reliable.)

Table 5-2
SUMMARY OF AIRPORT COST RECOVERY, 1988

Airport category	Number of airports	1988 Enplaned/ deplaned passengers (millions)	Cost attributable to commercial aviation (airlines)[a]			Full cost[c] less revenue from commercial aviation per passenger[a] ($)
			Full costs[b] ($ millions)	Operating costs per passenger ($)	Full cost per passenger[b] ($)	
I.	2	29.1	310	2	11	6
II.	6	22.9	350	3	15	10
III.	20	7.4	160	9	21	18
IV.	26	2.2	100	18	46	44
V.	44	1.2	180	51	146	140
Total	**98**	**62.8**	**1,100**	**5**	**18**	**13**

a. 1988 cost and revenue estimates are in 1990 dollars.
b. For categories I, II and III, full costs include an approximate allowance for land costs of $5 per passenger. See Notes to Chapter 3 in Volume 2.
c. Full cost per passenger from previous column.

We first discuss the airports in categories I to IV, given the special circumstances of many airports in Category V.

If charges were set to fully recover costs in the first four categories of airports, there would be an appreciable increase in the cost of air travel for users of the airports in Category III and especially Category IV. Under full recovery of present levels of costs, charges per passenger, on average, would increase by the amount shown in the final column in Table 5-2. These charges, however, would not necessarily be applied directly to passengers as a uniform per-passenger charge equal to the average amount shown. Some of these costs would be incorporated in landing fees charged to the carrier and/or in terminal fees charged to carriers or passengers. Charges may be direct to the airline but are then reflected in the traveller's ticket price. It should be noted as well that, from the traveller's point of view, the overall

increase in prices would be offset to some extent by eliminating the portion of the Air Transportation Tax currently assigned to airport funding.

The federal government, however, did not build these airports with the intent of full cost recovery, and the airports are run under a centralized system that does not pressure management to find innovative ways of achieving cost savings and of increasing revenues. If management operated airports with greater efficiency and lowered operating costs, the increase in average charges would not be as large as the amounts shown.

We note, for example, that Oshawa Airport, which is not federally operated but is locally run, handles about the same number of passengers as the smaller airports in Category IV and covers its operating costs with charges to travellers.[3] Although there are many important differences[4] between the two airports, a comparison between Oshawa and the Transport Canada-operated airport at Yarmouth is interesting (Table 5-3).

Table 5-3
Comparison of Yarmouth and Oshawa Airports, 1987

	Yarmouth	Oshawa
Annual operating deficit ($)	700,000	0
Operating hours (per day)	9	16
Total movements (per year)	10,000	98,000
E/D[a] passengers (per year)	35,000	38,000
Staff	20	3

Source: **See endnote 3.**

a. **Enplaned, deplaned passengers.**

The airports in Category IV, on average, cover only 14 percent of operating costs with charges to travellers. We believe that if these airports were run locally, had to meet costs through charges to travellers, and were not subject to central policy requirements more appropriate for larger airports, they could eventually reduce

operating costs substantially. The result would be terminals that are less expensive and better matched to the level of services required by the community.

Recommendations for Airport Pricing and Investment

Investments, such as new runways at airports, should be made according to our principles. The federal government is proceeding with the necessary studies in order to build three new runways at Lester B. Pearson International Airport and two at Vancouver International Airport. The full costs of these projects, including interest charges, should be recovered from the users of these airports. Even though the federal government has progressed beyond the point of initial consideration, it nevertheless should apply our principles to these major investments.

We **recommend** that:

5.1 (a) Airport pricing and investment be on an airport-by-airport basis; and

(b) The Air Transportation Tax not be used to help fund airports.

We recommended in Chapter 4 that government provide financial assistance, on a declining basis, to ease adjustment in situations where applying our principles would result in steep price increases.

Therefore, we **recommend** that:

5.2 Where applying our principles to airports, including all Transport Canada airports, would result in steep increases in average charges to travellers, governments provide transitional assistance:

(a) at an initial level based on the current subsidy of operating costs;

(b) to be phased out over 10 years;

(c) to be used for capital as well as operating expenditures; and

(d) if the airport is closed, to be used locally for other transportation purposes.

As we noted, governments built some airports on a larger scale and to a higher standard than was necessary, and with the expectation that taxpayers and not travellers would pay for the costs. In commercial terms, it makes no sense to try to recover the full capital costs of such existing airports. A write-down in value is necessary, and Transport Canada's charges to the airport authority for capital costs should reflect this write-down. If the federal government decides to turn such an airport over to a local authority, it may in some cases be appropriate to transfer it without charge. Any new investment, however, should not be made unless the prices to be charged can be set in such a way as to provide a positive return on the investment.

We therefore **recommend** that:

5.3 (a) The valuation of existing airport capital facilities used for establishing charges to travellers, and for transferring the airport to local airport authorities, reflect the commercial potential of the airport, not historical costs; and

(b) New investments be made in an airport only when costs, including a return on the investment, are expected to be repaid through future revenues.

According to our estimates, airports in Category V have extraordinarily high costs per passenger. Passing on such costs to travellers would cause a sharp curtailment in use. While it is possible to run many of these airports in a more cost-efficient manner, especially if requirements more appropriate for larger airports are removed, we realize that several airports may have no prospect of survival on a stand-alone commercial basis.

Governments may wish to retain some of these airports for reasons of national defence, health services, emergency evacuation, or other purposes not related directly to providing passenger transportation. In such cases, governments should support the airport with general taxpayer-financing and indicate clearly the purpose of the airport and the financing of it. Airport management should also allow commercial aircraft to use the terminal when this is compatible with the purpose of the airport. Charges for such services should include the cost of any extra facilities provided and should not be less than the levels of charges at small but financially self-sustaining airports.

Where governments judge that there is insufficient reason, on grounds other than commercial transportation, for keeping the airport open, they should apply the general transition mechanism that we suggested for other airports — a subsidy sufficient to avoid sharp initial increases in charges, but phased out over 10 years. Governments

should not undertake any new capital spending that cannot be recovered from future revenues. The terms of transfer of the airport to a local operator should reflect the airport's commercial value, which may be well below its historical cost. At some stage in the transition, it may become clear that an airport is not viable and should be closed.

Applying the Principles to Links

THE ROAD NETWORK

Until the beginning of the 20th century, roads were a necessary, but secondary, means of transportation compared with rail and water. The advent of the automobile and truck caused this form of infrastructure to come to dominate our transportation system and restructure Canadian lifestyles. One significant change was in the method of funding roads. While there was a mix of public and private infrastructure before 1900, after that date, nearly all roads outside of dedicated logging and mining infrastructure were provided by local and provincial governments. Most of the developing system was also provided free of direct charges, and today there are only three toll bridges and one toll road in the entire country. (Including international toll bridges and tunnels in the count would boost the number.)

Since the 1920s, although some of the cost of roads has been offset by fuel taxes and by specific property assessments for municipal upgrading, the road system has essentially been built by government departments financed through general taxation. This situation has begun to change because technology has made it possible to levy charges directly against users. Charges or taxes on fuel consumption in Canada are now partway between those in the United States (low) and Europe (high), and go a substantial way toward offsetting the cost of today's system. Electronic road pricing[5] is technologically feasible, and we believe it will be introduced in some countries in the next two decades. In the United States and other

countries, examples exist of automatic toll facilities, reading electronic toll tags.[6] The move from general revenue-based subsidies to a pay-as-you-go system of road pricing is possible now, and some move to link-by-link pricing is feasible in the near future.

Fuel Taxes and Licence Charges

We realize that applying our pricing principles to road links will be gradual. Our cost analysis also suggests that a large increase in charges is necessary if users are to pay for the road system. Initially, the shift to a pay-as-you-go system should be achieved through increases in the existing fuel taxes and licence charges, which are generally set on a province-by-province basis. Governments should identify and set aside the infrastructure component of these charges (Chapter 6). We do not want higher fuel taxes and licence fees to be added to the existing tax structure and thus form additional, windfall revenue for governments. We strongly believe that increases in fuel taxes and licence charges should be offset by reductions in the general taxes that currently pay for most road costs.

Canadians, as travellers and as taxpayers, are already paying for total road costs; we are advocating a shift from tax dollars to charges to travellers, not an increase in the total burden.

The marginal cost of road use by cars is low. Marginal-cost pricing would not cover full costs, but using fuel charges to cover full costs, or some other basis that relates charges strictly to distance driven, would tend to discourage road use more than is necessary.

We have examined different pricing approaches that would set a fair charge for cars and still cover road costs:

- Using only fuel taxes to recover road costs would result in a substantial increase above marginal costs in the road component of fuel taxes, thus discouraging road use.
- Raising licence fees would lessen the increase required in the road component of fuel taxes and might discourage road use less.

- Licence fees might also be set according to the value of benefits received — for example, higher licence fees would be charged for heavier and/or higher-priced cars if authorities judged there to be an association between the price of the car and the owner's valuation of the opportunity to use the roads. Any such approach would inevitably have to be based on use of a rough indicator — such as car weight or car price — of the value of benefits received.

When road owners set road charges to travellers, they must also include charges for environmental and accident costs. The current system of charging for accident costs involves an annual insurance premium that varies little, if at all, with annual distance driven. The result is that, for each additional kilometre that road users drive, they face less than the marginal costs of the accidents they impose. As noted earlier, however, using the fuel tax as the main road charge for cars is almost certain to cost travellers substantially more than marginal road-use costs. Therefore, the low marginal charges for accident costs would tend to offset the excess marginal road charges collected through a fuel tax. This balance lessens concerns about continuing to depend on annual insurance premiums and fuel charges to efficiently allocate road capacity.

We believe that charges on fuel will be used for some time to cover a major portion of road costs. As we shall discuss in Chapter 7, fuel taxes may also be appropriate as a means of charging for environmental damage. If transportation is to pay its costs but not more than its costs, and if governments are to treat the different modes equally, there should be no special taxes on transportation that are above the taxes or charges required to meet infrastructure, environmental, safety and accident costs.

Therefore, we **recommend** that:

5.4 All fuel taxes be used for transportation purposes or as a means of charging for costs caused by transportation, such as environmental damage and the health care system costs.

Since the federal government provides few roads, the federal excise tax on gasoline and diesel fuels should be withdrawn except to the extent that it proves to be an appropriate environmental charge. Provincial taxes on fuel used by rail and air, for which provincial governments provide few services, should be withdrawn except to the extent that these taxes prove to be appropriate charges in environmentally sensitive regions for which provinces take responsibility (Chapter 7).

Charges for Heavy Road Vehicles

Trucking was not specified in our mandate, but our proposal to recover road costs from users requires an appropriate division of those costs among cars, buses and trucks. Costs of road wear are generally much greater from heavy trucks than from cars, but different trucks impose different costs. Even though current provincial/territorial truck registration fees rise with truck weight, estimates prepared for the Royal Commission (Volume 2) suggest that heavy axle-weight[7] trucks currently pay less than their total cost of road wear. They may, in some cases, impose greater costs per vehicle-kilometre in terms of road wear alone than they pay in fuel taxes per vehicle-kilometre.

For heavy vehicles, we suggest adding an axle-weight and distance tax to the fuel tax to bring the total charge at least up to the marginal costs they impose. By aligning total charges more closely to the wear imposed by trucks with different weights and axle/tire configurations, the additional charge would encourage truck operators to choose vehicle types and loading practices that imposed less wear

on roads. In addition, the charge would achieve more equal treatment of trucks and rail in the movement of freight, as rail freight generally covers its full costs.

Therefore, we **recommend** that:

5.5 Provincial and territorial governments institute weight-distance taxes for trucks as part of an overall road-financing program.

Conventional Toll and Electronic Road Pricing

While we realize that fuel taxes, weight-distance taxes and licence fees applied provincially or territorially will constitute the major charges for road use in the future, specific link-by-link charges more fully reflect our principles and are already practical in some cases in their traditional toll form.

Therefore, we **recommend** that:

5.6 Conventional tolling systems be considered when new or expanded limited-access highways are required, with tolls set to cover any costs of the road link in question that exceed those recovered by fuel taxes.

In addition, governments could use tolls to levy a higher charge on peak-period users if congestion is a problem on a road. Toll roads should also provide an opportunity to test and improve electronic systems for identifying and charging for vehicle use.

Longer-Term Directions of the System

Over the longer run, we expect that developments in electronics will make it inexpensive to identify vehicles, record locations and times of road use, and charge accordingly. We suggest that governments give serious consideration to a system in which charges per vehicle-kilometre vary by vehicle type, road used and time of use. When it becomes technically possible to apply a pricing structure of this type, the benefits of doing so should be weighed against any disadvantages (increased complexity for travellers, for example). The benefits from individualized pricing are greatest where costs, especially marginal costs, differ substantially among route links and where travellers' decisions are likely to be significantly affected by differences in price. Where cost differences are modest, a system of common rates of charge for substantial groupings of road segments and vehicles may provide the simplest solution.

The use of light vehicles on low-volume rural roads and other local access roads may generate marginal costs much lower than the average costs per vehicle-kilometre. The result is that, to cover the full costs of the road, users would have to pay high charges. We believe there is no point, once a road exists, in wasting opportunities by discouraging road use. Local property taxes, or other local taxes levied on those who receive the primary benefits from such roads, may be an appropriate source of funding for part of the costs. Governments will need to reconsider such sources of funding as the pricing of the road system moves toward a link-by-link basis.

AIR LINKS: NAVIGATIONAL AIDS

Air links are serviced by the navigational aids used by scheduled commercial and other aircraft. Inter-airport air traffic control, especially as it evolves toward a highly automated system, can also be treated as part of air links for pricing and investment purposes.

The cost of the air navigation system involves a large capital component with almost no extra costs to add more users. Therefore, charges will have to be set above marginal costs if total costs are to be recovered. The excess of charges over marginal costs should be related to the users' valuation of their benefits. Pricing in this way would minimize the extent to which charges that recover full costs cause aircraft operators and potential operators to forego use of the facilities. Pricing based on distance flown and size of aircraft is one way of recognizing the value of benefits received. Governments may also institute a two-part pricing system based on a membership fee for aircraft operators plus a fee for each use.

Recommendations for Air Links

Currently, the costs of the air navigation and traffic control systems would almost be covered by the Air Transportation Tax if all of it were allocated for these purposes. But the basis for charges under this tax, which is levied on airline passengers, is not related closely to costs imposed by the aircraft, or distance flown and size of aircraft. In addition, the charges should be levied on aircraft operators, who in turn will pass it on to passengers, since carriers and other aircraft operators make decisions about air navigation system use.

Therefore, we **recommend** that:

5.7 A system be developed that charges aircraft operators directly to cover the cost of air navigation and traffic control. The charge should reflect costs attributable to the type of flight and class of aircraft, and value of benefits received. This system would replace the Air Transportation Tax.

As suggested above, the basis for appropriate charges is likely to involve a combination of distance flown and size of aircraft. It may also reflect the aircraft's route or the region over which it is flying.

RAIL LINKS

Pricing the use of rail track involves issues similar to pricing roads. With rail, however, the systems are already in place, or could be readily put in place, to allow charges to be based on the rail link used, the time of use, and the speed and weight of the train that causes wear. Railways that own their own track pay its full cost, and presumably respond to marginal costs in making pricing and operating decisions. The component of the cost of track (approximately 5 percent) represented by VIA Rail's payment, including incentives, to CN and CP for track use varies to a limited extent with tonne-kilometres travelled, depending on the link.

WATER LINKS

Links for ferries and other vessels are open water and buoyed (and sometimes dredged) channels. The costs of water links may vary little with changes in the level of use, thus the marginal cost may be low relative to the average cost.

To minimize discouragement of use, the federal government should apply a pricing approach for water navigation links similar to that for air navigation. Charges should reflect the costs associated with different groups of users and the value of benefits received. Savings in operating cost and safety presumably vary with the size of the vessel and the distance travelled. Where practical, charges should also reflect the different navigation system costs associated with different routes or regions.

The portion of total government water navigation costs attributable to ferries is low, and we are not suggesting a special system for ferries. Currently, there is little or no recovery of water navigation costs from ferry operators and other users, but Transport Canada has made proposals to move toward recovering a substantial portion of these costs. Ferries would come under the proposed cost-recovery system in the same way as other commercial vessels, and we suggest that policy makers examine the pricing approaches we have recommended when putting such a system in place.

Applying the Principles to Control

"Control" is the directing of traffic and policing of terminals and links. In each mode, control services involve a mix of capital and labour costs. Usually, costs are more closely related to the maximum number of vehicles the particular facility can handle than to the actual number of vehicles operating below the maximum. For example, the cost of handling one more motor vehicle, airplane, train or ship within capacity limits is likely to be small. If demand for services changes significantly, however, capacity should be adjusted, with a corresponding change in costs.

Use and provision of control services are often closely associated with use and provision of links, and it may be practical to combine the administration of pricing for links with that of control. Some control cost components are route-specific and, where practical, could be an element in establishing route-specific charges. Other control costs may not be closely related to activity on individual routes and will have to be divided among all users of a network. For example, a component of the fuel tax might be used to charge users of a provincial or territorial highway system for the costs of their police forces.

ENDNOTES

1. There are two methods of accounting for capital costs: investment expenditures can be included in total costs in the year in which they are made, or they can be amortized over time in such a way that the stream of annual "depreciation charges" and of annual "interest charges" (or return on capital) has the same discounted present value as the initial investment expenditure. The latter approach gives a smoother stream of annual costs and provides a better estimate of the cost of using the facility in a particular year. The Royal Commission's cost analysis work uses this amortized cost approach; a real rate of return of 10 percent, applied to one-half the replacement value of the facility, is used to estimate the "interest charge."

2. The balance is attributed to general aviation. Costs of military and other government use of air infrastructure are excluded from the total being allocated.

3. Gordon B. Hamilton, "Cost Competitiveness of Canadian Airports," paper presented to Air Transport Association of Canada 57th Annual General Meeting, Vancouver, Canada, November 10-12, 1991.

4. Yarmouth has 6,000-foot (1,800 metres) and 5,000-foot (1,500 metres) strips that are 150 feet (45 metres) wide to accommodate DC-9 aircraft; Oshawa has 3,400-foot (1,000 metres) and 2,670-foot (800 metres) strips that are 100 feet (30 metres) wide to accommodate DHC-8 aircraft.

   Yarmouth is 350 km from the nearest alternative paved facility; Oshawa is 65 km.

   One fifth of Yarmouth's annual operating costs are attributable to its full on-site Emergency Response Service (which is not required under national safety standards); Oshawa depends on the local fire department.

   Control-tower costs from the longer operating hours at Oshawa are not reflected in the airport's accounts.

   Yarmouth faces frequent heavy snow; at Oshawa it is rare, and clearance is not so urgent.

   There is a 5-year-old terminal at Yarmouth; Oshawa representatives are asking the federal government to build a terminal there.

5. Electronic road pricing refers to systems that are able automatically to recognize the existence of a vehicle, and to apply a charge that may vary with location and time. The vehicle might carry a pre-paid "debit card" in the form of an electronic tag, from which the charge was deducted automatically; or an automatic link might allow the owner's bank account to be debited; or the system might send the owner a bill, like other utility bills.

6. Examples are: on Oklahoma turnpikes, the Dallas North Tollway in Texas, and the Crescent City Connection Bridge, New Orleans, Louisiana. European examples include the Oslo and Trondheim Toll Rings in Norway, the Autostrada connecting Milan, Florence, Rome and Naples in Italy, and the ACESA highway in Barcelona, Spain. These and other systems are described in T.D. Hau "Congestion Charging Mechanisms: An Evaluation of Current Practice," Transport Division, Infrastructure and Urban Development Dept., The World Bank, draft report March 23, 1992.

7. "Axle-weight" is a customary abbreviation to describe the features of heavy trucks that determine the load they impose on road structures. In reality, loads vary with a number of vehicle characteristics in addition to the number of axles, including the number and width of tires, the spacing of the axles, and the nature of the suspension. Charges should take account of as many of these aspects of truck configuration as is practical, as well as the distance travelled.

CHAPTER 6

MANAGING TRANSPORTATION INFRASTRUCTURE: THE INSTITUTIONS

INTRODUCTION

In Chapter 4, we applied our principles to transportation infrastructure such as terminals, links and traffic control. We observed that:

- since carriers and other users will be asked to pay the full cost of transportation infrastructure, it is particularly important that what is provided is only what is needed;
- where there is an adequate degree of competition among various facilities in a regional market, the forces of competition should be allowed to determine levels of investment and charges, provided that such charges include the costs of accidents and environmental damage; and
- where competitive forces are not sufficient and/or users are in a weak bargaining position, regulation of prices and investment will be necessary.

Under our principles, we noted that governments would act primarily as referees in the passenger transportation system. Their role would be to:

- set and enforce standards;
- maintain competition, including assuring access to monopoly facilities by competing carriers;
- regulate prices charged by monopolies; and
- provide for research, accountability and transparency.

Where a government continues to own or operate transportation infrastructure, its refereeing responsibilities should be at arm's length from its ownership and operating responsibilities. Appointing a referee should be done in a way that enhances the referee's independence and ensures the arm's length relationship.

In Chapter 5, we developed pricing and investment approaches for infrastructure that would best achieve our objectives of fairness and efficiency. We recommended that when governments or industries consider investing in such infrastructure, they use benefit-cost analysis where, if possible, prices and revenues provide the basic measure of benefits.

In this chapter, we turn to the question of who should make investment decisions, set prices, and manage, build and maintain transportation infrastructure. We consider which features of institutions would, in general, help achieve the principles we set out in Chapter 4. We then consider a number of major institutional issues concerning specific types of infrastructure, including:

- the ownership and management of airports;
- the ownership and management of the air navigation system;
- the type of government institution that could be responsible for roads, and a possible national highway system; and
- the ownership and management of rail track.

Alternative Institutional Arrangements

Where transportation infrastructure is provided on a monopoly or near-monopoly basis, government intervention in pricing and investment may be required. Monopoly owners can charge higher prices than those required to recover an efficient level of costs, including normal profits. These higher prices can, in turn, lead to smaller facilities, or less use of facilities, and less use of the mode of travel, than

in non-monopolistic situations. Our concerns over monopoly profits apply to both privately owned and government-owned infrastructure. In the latter case, the infrastructure manager may have monopoly power over prices and little incentive for profit. This reduces the pressure to keep costs under control.

Where monopoly power is a concern, the challenge is to establish mechanisms that limit the exercise of this power without reducing the pressure for public and private firms to provide their services efficiently. There are many types of institutions that can regulate or intervene in monopoly or near-monopoly situations. In some cases, government institutions monitor private companies; in others, independent institutions monitor public companies.

PRIVATE-SECTOR PROVIDERS OF TRANSPORTATION INFRASTRUCTURE

Examples in Canada and Other Countries

The private sector provides transportation infrastructure largely to meet carriers' needs. Railways tend to own their track, bus companies generally own their terminals, and ferries frequently provide their own docks and wharves. While few carriers own air and road infrastructure, in the United States major air carriers have entered into residual financing arrangements with airport authorities. Under such arrangements, an airline assumes the airport's financial risk in return for long-term agreements that provide it with considerable control over investment and operations at the airport.

Governments in several countries have been attracted by the prospect of private-sector ownership of transportation infrastructure as commercial ventures. France, Italy and Spain have set up extensive systems of tolled highways under private or mixed ownership. The United Kingdom and some U.S. states, notably California, have invited private firms to participate in developing and operating a number of tolled roads, bridges and tunnels. In 1987, the governments of the United Kingdom and France awarded a monopoly franchise

to a private company, Eurotunnel, to build and operate a 50-kilometre rail tunnel between Dover and Calais. There are also examples of private-sector involvement in airports.

The fixed crossing under consideration between Cape Tormentine, New Brunswick, and Borden, Prince Edward Island, is a potentially important Canadian experiment in private-sector involvement in a transportation link. The federal Department of Public Works has received bids from private-sector consortia that are prepared to build the crossing, operate it for 35 years and then transfer it to the Department. The project, estimated to cost up to $1 billion, is to be privately financed. Private investors will derive revenue from toll charges to be indexed to the provincial Consumer Price Index and from a 35-year federal subsidy. This subsidy is not to exceed the estimated cost to the federal government had it continued to operate the Cape Tormentine to Borden ferry service at the current subsidy level plus inflation.

Are private firms more efficient than governments in providing transportation infrastructure? In the case of European toll roads, where governments have had extensive experience with private-sector involvement, the evidence is mixed. Private firms appear to have performed well in managing road construction, but governments have had difficulty establishing long-term arrangements that offer sufficient incentive to private companies to maintain such roads and operate them efficiently.[1]

We also note that efficiency is not necessarily the main reason that governments turn to the private sector to provide this infrastructure. Governments are attracted by the opportunity to avoid borrowing, rather than by the possible gains in efficiency that result from transferring investment decisions and risk-taking to private operators.

Problems with Private-Sector Providers

We believe that private ownership of transportation infrastructure can be compatible with our principles with respect to pricing and equal treatment of the modes. Transportation infrastructure, however,

often requires large amounts of highly specialized investment. The result is that, in some cases, owners may gain considerable monopoly power. Government regulation will often be necessary to control the power of private firms, or autonomous public firms, and to ensure that carriers have equal access to infrastructure.

Problems of equal access arise particularly when a carrier, or a number of carriers, own or control infrastructure and can prevent entry by potential competitors. At some U.S. airports, a single carrier may have substantial influence under the residual financing arrangements. There, major carriers with long-term exclusive leases and the sole right to use scarce airport gates may block expansion of the airport and thus impede the entry of new carriers and competition.[2]

Problems of access are not exclusive to transportation, but arise in other industries such as electric utilities, natural gas and telecommunications. Governments have recognized the need to ensure access to essential infrastructure in all sectors of the economy. While there is no universally accepted definition of essential, one review of U.S. regulatory decisions[3] found that regulators tended to apply four criteria when defining essential facilities:

- The facility is controlled by a monopolist or a group of competitors with monopoly power.
- Duplicating the facility is not commercially viable.
- Denying access to the facility, or imposing restrictive terms of access, has a substantial adverse effect on competition.
- There is no valid business reason for denying access.

Based on these criteria, if a potential entrant to the market could provide its own parallel infrastructure at the same or lower cost, access would not be a problem and the infrastructure would not be considered essential. For most transportation infrastructure, however, these criteria apply and access is an issue. In the case of intercity bus terminals, new entrants denied reasonable access to an existing

bus terminal can often make their own arrangements for passenger pick-up and delivery. In some locations, however, bus terminals may be essential infrastructure. The advantages of the location of the central bus terminal in a major city may be such that carriers denied access would be at a considerable competitive disadvantage.

Governments can attempt to regulate fair and equitable access, but may not be able to enforce it effectively. Transportation infrastructure owners who have an interest in preventing competition may be able to hamper new entrants with subtle impediments. The question then arises: is carrier ownership undesirable where transportation infrastructure is essential? Governments must weigh the risks of anti-competitive conduct against the gains that may result from allowing a single organization to provide both carrier and infrastructure services. Such gains could exist where there are efficiencies in making carrier and infrastructure investment decisions together, or in jointly managing infrastructure and carrier operations. This issue is particularly relevant to the current institutional arrangements for passenger rail services, which we discuss later in this chapter.

PUBLIC-SECTOR PROVIDERS OF TRANSPORTATION INFRASTRUCTURE: THE OPTIONS

A Government Department

In Canada, most public transportation infrastructure, including roads, air traffic control and most airports, is the direct responsibility of government departments. This has advantages in some circumstances. It allows a high degree of political direction, which may be desirable when government objectives vary and cannot be clearly articulated in advance. When close political direction is necessary, however, it is important to find ways to increase transparency and improve accountability in order to sustain our basic principles for pricing and investment decisions.

A government department is at a disadvantage when it operates infrastructure such as roads and airports. Hierarchical and bureaucratic decision making can be costly and slow, particularly when departments

need to respond rapidly to changing economic circumstances (for example, in carrying out functions with large operational or commercial components). In addition, the nature of centralized budgeting means that when more spending is part of the appropriate response to circumstances, departments will not be able to provide the funds because of other political priorities, even if the users are willing to pay.

Some of the problems of government departments can be addressed by contracting out certain activities to private firms. At present, most provincial and territorial government departments contract for road construction, and many contract for road maintenance. The federal government contracts with private firms to operate some of its smaller airports.

A government department is likely to be the best choice as a provider of transportation infrastructure where the benefits of satisfying a need for close policy direction outweigh the costs of a less-efficient operating environment. A government department may also be preferred if financing the infrastructure requires taxation, which governments closely control.

A Crown Corporation

Crown corporations have greater autonomy than government departments. They generally have boards of directors that help ensure that decision making occurs at arm's length from governments. Governments, however, may provide general direction through legislation that establishes the Crown corporation and may retain the power to give it directives on key issues.

Using Crown corporations can facilitate implementing and enforcing our principles, can promote financial transparency and can provide greater efficiency than is likely with a government department. Efficiency may increase because of the advantages of decentralized decision making and the corporation's freedom from standardized departmental rules and bureaucratic procedures. The corporation may also put an increased emphasis on commercial objectives and internal incentives to promote improved commercial performance.

The advantages of a Crown corporation, however, may not be realized if governments fail to establish an adequate regime of accountability and control. Governments must include mechanisms for monitoring the corporation's performance to ensure that its board and management are fulfilling their responsibilities and not abusing market power. At the same time, we stress that monitoring and control must be oriented toward achieving general objectives and must not become a means by which governments micro manage Crown corporations. Where effective control can be exercised, a Crown corporation may be a better institutional choice for managing some transportation infrastructure. We caution against the politicization of Crown corporations by governments, which would detract from the usefulness of a Crown corporation for managing transportation infrastructure.

An Independent Authority

An independent authority has greater autonomy than a Crown corporation. It generally has a board of directors composed of interested parties such as users, local or regional governments, professional associations, environmental group representatives and related interest groups. The board is not subject to government directives and has full authority for pricing and investment decisions, possibly subject to a regulatory review. One type of independent authority is the Local Airport Authority established to operate some federally owned airports. Similar independent authorities could be established to operate link and control components.

User-groups represented on the board of directors can directly influence levels and quality of service. Their influence also reduces the risk that fees will be set at monopolistic levels. We note, however, that an independent authority may make decisions contrary to the wishes of groups under-represented or not represented on its board. Such groups may include carriers who desire access to a particular facility. Since government does not monitor an independent authority's performance as it does a Crown corporation's, we believe it is extremely important that the independent authority's board

membership adequately represent all interested parties. This would ensure that sufficient pressure could be generated within the organization for efficient performance.

An independent authority is a good choice for providing transportation infrastructure where there would be considerable gain from limiting government influence, and where interested parties could be adequately represented on the board. These factors were influential in the creation of Local Airport Authorities, which we discuss later in this chapter.

Choosing the Appropriate Public-Sector Institution

There is no ideal institutional structure that should be used for all types of transportation infrastructure. The appropriateness of the organization will differ depending on the mode of transportation and the type of infrastructure. The choice also depends on the nature of government objectives and the inefficiencies that may result when government is involved in activities that require frequent decisions on operational issues.

In addition, the adequacy of an institution depends not just on its type — government department, Crown corporation or independent authority — but also on the mechanisms available to promote transparency and to increase the accountability of those making decisions. We believe, however, that there are advantages in moving away from governments' current reliance on their own departments for providing transportation infrastructure. Later in this chapter, we examine the type of institution that best matches certain modes and types of infrastructure.

PUBLIC-SECTOR PROVIDERS OF TRANSPORTATION INFRASTRUCTURE: RELATED ISSUES

Earmarking Revenues, Borrowing, and Controlling Charges

In Chapters 4 and 5, we stated that charges for the use of infrastructure should cover the full, efficient costs of operating the infrastructure.

This in turn suggests that the revenues raised from such charges be earmarked to cover the costs of such infrastructure. Costs should include payment to governments for a return on their investment in infrastructure. As well, owners of infrastructure might need to borrow in order to finance new construction (particularly in the case of an expanding operation). The interest and principal costs of borrowing should be paid for from revenues from charges to travellers.

Earmarking revenues and undertaking project-related borrowing are natural activities of Crown corporations and independent authorities. Although such activities are not as characteristic of government departments, departmental operations in the past have made some use of earmarked funds. These include revolving funds, a limited number of earmarked taxes such as the Air Transportation Tax, and social insurance charges such as the Unemployment Insurance premium.

Many Canadians will view charges to travellers as similar to taxes, particularly when such charges are not closely related to the benefits received and where the monopoly is powerful — as in the case of providing roads. In cases such as this, government may wish to maintain direct control over pricing. If government does not maintain direct control, then an independent regulatory body would be required to review charges proposed by the road owner.

Advisory Arrangements

Advisory bodies may be useful supplements to any type of institution, but may be especially appropriate where a government department provides transportation infrastructure. Advisory bodies offer an independent source of counsel on pricing and investment decisions, and/or provide the public with independent information on the management of the infrastructure. Advisory groups have no power to make decisions and are not sufficient if the main goal is to separate decision making from the political process. An advisory body, however, may be a realistic first step toward institutional change when issues involve policies over which governments have closely guarded their authority.

An independent source of advice can also be beneficial for public agencies or independent authorities. It can provide some balance to the natural tendency on the part of management to empire-build — to increase their scope of activities wherever possible. In addition, advisory bodies that report publicly can make an important contribution to improving the transparency of financial arrangements and decision making.

Airports

In Canada, the federal government currently owns the major national and regional airports as well as a number of the airports used by commercial air services in small communities and remote regions. Some of the major airports are now being transferred to Local Airport Authorities.

Federally owned airports operate under various types of management. Some, including the larger airports, are being managed directly by the federal Department of Transport or by Local Airport Authorities. Some are operated by private firms under contract. Others are leased out to regions or municipalities, with or without federal subsidies. Terminal 3 at Lester B. Pearson International Airport in Toronto is unique. It was developed and financed, and is being operated, by a private firm under a long-term lease agreement with the federal government.

As well, there are municipally owned airports such as Edmonton Municipal (one of the ten busiest airports in Canada) and privately owned airports such as Buttonville in Toronto.

Many other countries do not use government departments to operate major airports. Institutional arrangements vary:

- In the United States, major airports are run by municipal or county governments, or by airport or port authorities.[4]

- In the United Kingdom, seven major airports — Heathrow, Gatwick, Stansted, Prestwick, Glasgow, Edinburgh and Aberdeen — are now owned and operated by a private sector company (BAA plc). Smaller U.K. airports are owned by local city councils, private firms or, as in Liverpool, by both.
- In Germany, the 11 main airports are operated by independent companies, with the federal government as a minority shareholder in each airport corporation.
- Australia has a centralized institutional structure, but since 1986 the major airports have been managed by the Federal Airports Corporation, a Crown corporation with a commercial mandate.

LOCAL AIRPORT AUTHORITIES (LAAs)

In Canada, the federal government is reducing its role in airport operations by transferring the operation of several major airports to Local Airport Authorities. Its objectives in so doing are "to make airports serve local community interests better and to allow our national airport system to operate in a more cost-efficient and commercial manner."[5] Currently, federally owned airports in Vancouver, Calgary, Edmonton and Montreal have been or are being transferred to LAAs, and several other large federal airports are expected to be considered for transfer.

The Role of LAAs

LAAs are independent bodies that can enter into contracts, issue debentures, sue and be sued. Unlike private corporations, LAAs do not have shareholders. The Board of Directors runs the LAA and has responsibility for establishing objectives and policies, approving plans and budgets, and overseeing the performance of management. The enabling legislation or articles of incorporation for an LAA specify which governments and organizations may appoint board members. The nomination of elected government officials or government employees is prohibited.

The federal government has a continuing responsibility for air navigation and safety at LAA airports, and remains a landlord, leasing airports to the LAA on a long-term basis. The LAA operates the airport and assumes full responsibility for any financial liabilities it incurs. LAAs are expected to achieve financial viability by setting their own rates and developing the commercial potential of the airport. LAAs have 60-year leases with a rental formula that allows the federal government to share in any growth in gross revenue above a base-case forecast. Under this formula, the federal government should be no worse off financially, and potentially better off, than it would have been had it continued to operate the airport.

Potential Monopoly Power of LAAs and Other Major Airports

Federal policy concerning LAAs does not include any explicit provision to control monopoly power. We believe that it is important to look at the potential for non-competitive pricing of landing rights by local authorities.

The potential for non-competitive pricing is enhanced by the fact that landing fees generally constitute a small portion of flight costs; this tends to cause carrier demand for landing rights to be relatively unresponsive to increases in landing fees. The market power of the LAAs also depends on the opportunity for carriers and other users to switch to another airport. For example, if Airport B is a close substitute for Airport A, any attempt by A to unilaterally raise its landing fees would have a detrimental effect on its traffic. In practice, however, the ability of airlines in Canada to use alternative airports is limited. For non-connecting traffic, which constitutes around 70 percent of the traffic at most Canadian airports, airlines have an alternative only when a second relatively uncongested airport is in close proximity. Few Canadian centres have two or more airports that are in a position to compete with each other for such traffic. The result is that, in general, airlines have few opportunities to switch airports if LAAs abuse their market power by setting excessively high landing fees.

The possibility that carrier access could be restricted at airports under LAA control also warrants examination. Transport Canada officials argue that the interest of the local community is in promoting access by as many carriers flying to as many locations as possible. An LAA might, however, find that, in principle, it could maximize its own revenue by awarding a long-term exclusive lease to a single carrier who would be willing to pay a price for the exclusive lease, which would allow it to earn monopoly profits. This arrangement would limit local residents' choice of airlines. Under these circumstances, the onus would be on the Director of Investigation and Research in the federal Department of Consumer and Corporate Affairs to enforce the prohibitions in Canada's *Competition Act* against exclusive contracts and discrimination in supply.

We believe that the nature of LAA boards and the *Competition Act* provide considerable protection against monopoly pricing and, in particular, limitation of access to competing carriers. At this stage, we do not recommend establishing a referee with review powers over LAA pricing. LAA pricing, however, should be monitored by the National Transportation Agency on behalf of the federal government.

THE IMPACT OF FEDERAL POLICIES ON COSTS

Federal control may increase operating costs at Canadian airports because of:

- delays in making new investments where expansion is justified;
- administrative overhead;
- operating standards that are inappropriate for and that substantially increase costs at smaller federal airports; and
- inflexibilities associated with federal labour practices.

The problem of inappropriate common standards is illustrated by the government policy of having separate Emergency Response Services (ERS) available on-site at even the smallest federally operated airport with scheduled commercial flights. For example, at Yarmouth, Nova Scotia (a federally operated airport), approximately one fifth of operating expenditures are associated with maintaining on-site ERS. By comparison, Oshawa, Ontario (a non-federally operated airport with similar traffic levels) relies on the local fire department and incurs no ERS expenses. Oshawa's total operating expenses are about one-quarter Yarmouth's. The higher ERS costs at Yarmouth are not due to poorer performance by airport staff, but to costs associated with federal airport policy.[6]

The impact of federal work rules was illustrated in a 1985 report by the Auditor General of Canada that compared airport maintenance at three U.S. airports with that of three similar Canadian, federally operated airports. The report found that labour requirements at the U.S. airports were 40 percent lower. While employees at U.S. airports performed a variety of functions, Canadian workers were hired for specific maintenance functions. The result was lower labour productivity and higher operating costs.[7]

GUIDELINES FOR AIRPORT REFORM

Investment in federal airports has been influenced by the federal government's financial position. We believe it is important for the airports to be self-financing in all aspects, including air traffic control.

Local control of federal airports will alleviate some of the problems of the current system. Decentralized decision making will allow airport management to pay greater attention to the preferences of residents of the region served by the airport, who are also the primary users of the airport and bear the consequences and reap the benefits of new airport development. Decentralized decision making

should also contribute to greater transparency. Users can see more clearly what they are paying for in a system where there is a direct connection between charges to travellers and capital spending.

Therefore, we **recommend** that:

6.1 The federal government proceed quickly with the transfer of all remaining federal airports to local airport authorities and/or to other types of local operators.

Air Navigation

Canada's air navigation system has been under increasing pressure from the growth in air traffic following deregulation of the airline industry and increased activity at certain hub airports. In our hearings, speakers expressed concern that air traffic operations are underfunded and, therefore, cannot adequately respond to market demands. In July 1991, the Air Transport Association of Canada, the Canadian Airline Pilots Association, the Canadian Air Traffic Controllers Association and the Canadian Business Aircraft Association observed, in a letter to the federal Minister and Deputy Minister of Transport, that "the present Air Traffic Control System is not serving the interests of the travelling public, pilots nor the aviation industry and is creating a progressively higher level of frustration in employees working the system who wish to perform a professional service."

The federal government has responded. In particular, Transport Canada is looking at ways to increase the number of licensed air traffic controllers, and has developed a comprehensive plan to meet requirements for controllers by July 1994.

We believe, however, that these issues reflect fundamental deficiencies in Canada's current organizational arrangements for air navigation. Stress on the system would be reduced in an environment where

managers had greater operational freedom and access to revenue that allowed them to respond to changing requirements. The 1991 final report of the Ministerial Task Force on Aviation Matters expressed the issue thus: "The public service environment with its restraints, slow and complicated processes, uncertainty of funding within the government's competing demands and lengthy decision-making processes seemingly inherent in a civil service does not correspond to the dynamic environment in which aviation operates. All of these factors combine to limit the flexibility of the department and reduce its ability to respond quickly and effectively to the ever-growing demands of the aviation community."[8]

In the United States, the Federal Aviation Administration (FAA) has somewhat greater operational freedom than its Canadian counterpart, although it is still part of the U.S. Department of Transportation. A number of other countries — Australia, New Zealand, the United Kingdom and Germany — are establishing their air navigation systems with independent status. The Ministerial Task Force on Aviation Matters also favours this general approach.

We therefore **recommend** that:

6.2 The federal government convert the air navigation system from a departmental organization to either a Crown corporation or an independent institution.

An independent institution, separate from government, is consistent with, and complementary to, our proposal in Chapter 5 that airline companies pay the full costs of air navigation. Such an organization might be a publicly owned independent authority or a private corporation owned jointly by airline companies. A user-funded institution free from the restrictions that apply to government departments would be in a better position to meet the requirements of the airline industry.

THE ROLE OF THE FEDERAL GOVERNMENT

Under our proposal, Transport Canada would continue to ensure that the air navigation system meets appropriate safety standards. The federal government must also be in a position to ensure that international obligations to provide access to foreign carriers, and to comply with international technical standards, are met.

In addition, if air navigation is assigned to a Crown corporation, the federal government would be responsible for monitoring activities and reviewing performance, as it does with all federal corporations subject to the *Financial Administration Act*. Since the proposed agency would be a monopoly, albeit a public monopoly, one of the purposes of federal review would be to ensure that the agency did not abuse its monopoly powers.

AN INDEPENDENT INSTITUTION

An alternative to a Crown corporation would be a private corporation, jointly owned by the users, with the federal government still responsible for regulating safety. Since such a corporation would be responsible to its owners, who are also users, it would be less likely to exploit its monopoly position. Its owners and users would want the highest level of service at the lowest possible cost.

We see advantages in a privately owned, user-operated air navigation system that is subject to government safety regulation. Before such a system could be implemented, however, the federal government must ensure that the interests of all stakeholders are adequately represented. For example, those with a minor, or no, position in the corporation (such as small carriers or general aviation) must not be discriminated against. The system must also be set up in a way that precludes it from being able to put potential new entrants to the airline industry at a disadvantage. If the independent institution's charter does not give adequate representation to all these interests, the federal government should appoint a referee. If the federal

government is unable to establish a private corporation that gives adequate protection to all interested parties, a Crown corporation would be preferable to an independent institution.

Roads

Highway networks are unlikely to be privatized or turned over fully to independent authorities in the near future. A major role for Crown corporations with a considerable degree of independence holds more immediate promise. Governments have traditionally retained close control over the extent and location of roads and the charges for their use. Road pricing will probably continue to take the form of fuel charges and licence fees, supplemented by weight-distance charges on trucks. All of these charges are generally uniform within a province.

With uniform charges, prices and revenues provide limited guidance in assessing specific road investment decisions. Toll roads are the exception. Pricing can then be specific to individual links, and prices and revenues can provide a basis for investment decisions.

While governments are likely to retain responsibility for decision making, they should be more accountable and the nature and implications of decisions should be more transparent. Road users should have information that will enable them to assess whether the highway system is being efficiently managed through appropriate decisions on investments and maintenance.

TRANSIT NEW ZEALAND: A MODEL

In 1989, the New Zealand government created Transit New Zealand, an institution established outside the departmental structure in order to remove political influence from expenditure decisions. Transit New Zealand coordinates road planning and provides independent advice on road revenue policy and road expenditures. Although the Minister of Transport must approve its annual revenue and

expenditure proposals, these proposals carry considerable weight as a result of Transit New Zealand's extensive system of consultation and highly transparent system of road planning.

Transit New Zealand develops an annual National Land Transport Programme, drawing on plans developed in each of the 14 regions of New Zealand. These plans are based on decisions made at the local level. The Land Transport Fund, managed by Transit New Zealand, finances expenditures and provides all participants in the system with a clear picture of revenues and expenditures.[9] Revenues come from fuel taxes, other charges to road users (including a weight-distance charge for heavier trucks), and motor-vehicle registration and licensing fees.

GUIDELINES FOR PROVINCIAL AND TERRITORIAL ROAD AGENCIES

New Zealand's approach shows how a Crown corporation can be used to encourage greater efficiency, and to increase accountability and transparency in pricing and investment decisions.

We therefore **recommend** that:

6.3 Each provincial and territorial government establish a Crown corporation, supplemented by an advisory group, to provide roads more efficiently and to make road pricing and investment decisions more transparent.

The advisory bodies should include specific user-groups as well as other groups that have system-wide interests, such as those concerned with the environment. The mandate of the advisory body should be broad enough to include links between the roads and other modes of transport.

We expect that most provincial or territorial governments would wish to retain final authority over levels of fuel tax, motor-vehicle licence fees and weight-distance charges. But we suggest that provincial and territorial governments make decisions on these charges in response to proposals from their road agencies, which would recommend levels for the charges together with road investment plans.

Under our principles, revenues from charges to travellers transferred to a road agency should be related to use of the roads for which the agency is responsible. For example, if a road agency is responsible for building and maintaining provincial but not municipal roads, revenues related to the use of municipal roads should be handled separately.

The provincial government would allocate, as accurately as possible, the portion of total fuel-tax revenues in a province to a "road account." It should also consider applying a fuel tax to cover road-related policing costs, traffic control and some health system costs (Chapter 8). In addition, the provincial or territorial government may be the appropriate level of government to apply some environmental charges (Chapter 7).

THE NATIONAL HIGHWAY SYSTEM PROPOSAL

The Federal-Provincial Council of Ministers Responsible for Transportation and Highway Safety is currently studying a National Highway Policy proposal. The proposal would designate, as the National Highway System (NHS), a network of highways linking provincial and territorial capital cities, other main population centres, major ports and U.S. border crossings. The network would be almost 25,000 kilometres in length, compared with 7,300 kilometres for the Trans-Canada Highway.

The proposal suggests that the network be upgraded "to bring cohesiveness, prestige and uniformity of standards to the major

highway transportation linkages of national significance in Canada."[10] Minimum standards would include:

- a design speed of 100 kilometres per hour — that is, highway alignment and shoulders sufficient to allow 100 kilometres per hour operating speed;
- sufficient capacity to handle the volume of traffic expected without average speed falling below 90 kilometres per hour;
- bridge and road strength adequate to handle traffic without seasonal weight restrictions; and
- road surfaces to meet a consistent measure of ride smoothness.

According to studies performed for the Council of Ministers Responsible for Transportation and Highway Safety, many existing highways that would form part of the intended network do not meet these standards. They found that:

- about one third of its length does not meet the proposed minimum standard for 100 kilometres per hour design speed because of inadequate width, alignment, or shoulders;
- about 19 percent of the network is at times too congested to allow 90 kilometres per hour continuous operation;
- almost 16 percent of the network has load restrictions and requires pavement or bridge reconstruction to handle the maximum loads allowed under national standards; and
- about 16 percent of the network needs resurfacing to meet the proposed standard for ride smoothness.

In total, about 9,500 kilometres of the proposed 25,000-kilometre network would not meet one or more of the proposed minimum standards, and 790 bridges would need strengthening.

The Costs of Upgrading the NHS Network

The National Highway Policy proposal has identified all of the upgrades that would be required to meet these standards — some

2,000 separate projects with a total estimated cost of $12.7 billion in 1989 prices. A secondary proposal under consideration would add the twinning of all remaining sections of the Trans-Canada Highway for an additional cost of $4.8 billion in 1989 prices.

The Council of Ministers Responsible for Transportation and Highway Safety is examining whether the federal, provincial and territorial governments can reach a cost-sharing agreement to allow adoption of these proposals.

Assessing the NHS Proposal Using Our Principles

We believe that governments should assess the NHS proposal using our principles for investment decisions, and provide financial support for component projects only if the benefits exceed the costs and if the project can be paid for by the travellers who use it. Governments should also compare these projects with possible investments in other modes and other locations. Approved NHS projects should then be financed by charges to road users.

An analysis of the NHS showed that the proposal as a whole would not meet the benefit-cost test.[11] Using Transport Canada's standard valuations of benefits, it appears that the costs of upgrading the network to the proposed uniform standards exceed expected benefits, and that the additional proposal to twin the remainder of the Trans-Canada Highway would increase the net loss substantially.

Some of the projects, however, could produce substantial net benefits over their costs. For example, many of the maintenance projects for existing roads, such as bridge rehabilitation and highway resurfacing, are more beneficial than many proposed investments in building new lanes or widening existing highways. In addition, the proposed improvements most easily meet the benefit-cost test for the more intensively used parts of the network, (generally located in more populated regions of the country).

We believe that, rather than trying to make a decision on the proposal as a whole, projects should be rigorously evaluated on an individual

basis. Governments should establish priorities for those projects that pass a benefit-cost test. We see the National Highway Policy proposal as an example of the potential for excessive spending that can arise when common national standards and engineering conventions are emphasized, but little attention is given to assessing the economic benefits and costs of individual projects.

Recommendations for the National Highway System

The proposed minimum standards would require a substantial expansion of capacity for many low-volume roads. The failure of many of the proposed projects to meet a benefit-cost test, however, demonstrates that the proposed engineering standards are not appropriate to all highways and traffic conditions. On those parts of the network with less traffic, some more-modest upgrading projects, to meet standards of capacity and performance somewhat less rigorous than those applied to roads with higher volumes of traffic, might be sufficient. To achieve efficiency, governments should tailor solutions to local conditions.

Therefore, we **recommend** that:

6.4 The extent of restoration and upgrading of the national highway network be guided by comparison of benefits and costs on individual projects, rather than by uniform engineering standards.

Our rejection of the minimum engineering design standards in the NHS proposal does not mean that the entire proposal should be abandoned. We believe there are advantages to be gained from designating a National Highway System and giving it maintenance priority, special markings and uniform signs. Both carriers and travellers would gain from using a system of interconnected roads of predictable quality.

We believe the proposed network is viable because it could generate sufficient revenue from users to pay for maintenance and upgrading. We do not believe, however, that all of the upgrading in the current proposal is necessary. Outside the most populated areas, there is substantial excess capacity in Canada's highway system. It would not make sense to increase that capacity still further to meet arbitrarily set minimum engineering standards. Upgrading should concentrate on the existing and potential problem areas.

The National Highway System could be operated by a Crown corporation, raising its funds through charges to travellers using the designated network or receiving appropriate transfers of the fuel taxes and registration fees from governments. Such an agency could provide users with a clear picture of road costs and provide a mechanism for formal consultations. We believe, however, that the key improvements in this highway network could be achieved by simpler forms of coordination on the part of provincial and territorial governments and/or their road agencies.

Therefore, we **recommend** that:

6.5 A National Highway System (NHS) be identified by the Council of Ministers Responsible for Transportation and Highway Safety, and the system be operated and maintained through cooperative action of provincial and territorial governments and/or their road agencies.

We also believe that the rationale is weak for funding projects through a national charge to all travellers or federal-provincial cost-sharing. The projects on the proposed network that meet a benefit-cost test are concentrated in Central Canada, where the population is densest, rather than spread equally across the country. The funding of such projects should be the responsibility of travellers in those regions that benefit from these investments.

Therefore, we **recommend** that:

6.6 Provincial and territorial governments meet the costs of their highway system, and any agreed upon National Highway System projects within their borders, through fuel taxes and other charges.

Under our principles, the federal government would no longer raise revenues from fuel taxes, except as an environmental charge on fuels (Recommendation 5.4).

We expect that examining the benefits and costs of all road projects will indicate that most worthwhile NHS projects can be financed by provincial or territorial governments using monies that might have been spent on other, lower-priority road projects.

Control of Rail Tracks, Stations and Trains

Rail is different from other modes of transportation because individual carriers often own the rights-of-way, track, and train-movement control systems. We are concerned about two rail issues:

- how ownership of the track influences competition to provide rail passenger and freight services; and
- how the need for rationalization of track networks can be met. Such rationalization raises the issue of rights-of-way abandonment, which we highlighted in our Interim Report.

OWNERSHIP AND COMPETITION ISSUES

Is open access compromised when rail carriers own essential transportation infrastructure? Under our principles, open access to essential facilities is intended to promote competition. While we realize that it will often be impractical in all cases to provide competing rail

infrastructure, we believe that considerable benefits of competition may still be obtained by allowing more than one carrier to use the existing track.

A freight or passenger carrier that owns track may create an entry barrier to new rail carriers and may impede the operations of competitive carriers. A new carrier can only enter passenger rail or freight carriage if it can negotiate reasonable terms of access with a track owner who may also be a competitor. Rail carriers thus tend not to be subject to the discipline that, in other modes, comes from the threat of entry.

Direct competition is less likely to occur in passenger rail than in freight carriage because unsubsidized passenger service has not been profitable. We are still concerned, however, that there be sufficient access for new carriers in passenger rail should they wish to enter the markets. Convenient entry for a carrier would ensure that passenger rail is given the opportunity to demonstrate its strengths in instances where it has a chance of being viable.

Passenger rail can be complementary to freight, because both services share the cost of the track. It can, however, compete with freight on heavily used segments of the track where the two users have conflicting requirements. This conflict accounts for some of VIA Rail's difficulties in obtaining optimal track access. As well, the federal government requires VIA Rail to service certain markets, putting VIA Rail in a weak bargaining position. It cannot refuse to deal with CN or CP simply because their services or rates for track usage are unacceptable.

IMPROVING ACCESS TO RAIL TRACKS

Steps can be taken to improve access to rail tracks for new entrants and others willing to pay their share of the costs, by:

- establishing stronger legislative provisions and regulatory procedures to promote access; and

- if such legislation proves insufficient, separating ownership of track and carrier operations by restructuring CN and CP.

Separation could be achieved by creating a public or a private track corporation that would own and manage the national track network.

Improving Access through Legislation and Regulation

Running rights, the rights that allow one railway company to operate over the tracks of another company, have a long history in Canada. Legislation on running rights from the earlier *Railway Act* was incorporated into the *National Transportation Act, 1987*. Under this Act, the National Transportation Agency can order one railway company to provide running rights to another if the two railway companies cannot work out an agreement on their own, and if the Agency deems access to be in the public interest. This provision, however, is contained in a section of the NTA, 1987, that applies exclusively to rail freight.

Therefore, we **recommend** that:

6.7 Legislation on track access also apply to passenger rail, so that all qualified carriers willing to pay for what they use have a right of access to essential rail infrastructure and to equal treatment in movement of rail traffic.

Unless the owner can prove that running rights would create unresolvable operational problems in a particular situation, the legislation should require the National Transportation Agency to agree to an application for access by all carriers that are "fit, willing and able" to use the infrastructure.

The technological, dispatch and traffic control issues associated with opening the track to multiple users are not a problem unless the owner of the track also happens to be a user in competition with other users of that same track. As for other modes, especially air, sophisticated techniques of traffic control are available. In addition, the rail industry has had considerable experience with trackage rights and joint agreements that raise many of the same issues. In negotiating these arrangements, railway companies have had to work out operating rules, establish track priorities and apportion liability. We see little evidence that the resolution of these issues has resulted in operational problems.

Improved legislation, however, may not be sufficient to solve certain problems of access. For example, a railway company could allow other carriers access to its tracks but establish rates or conditions that would make use of the track highly unattractive. A host railway can also substantially disadvantage a potential competitor through its traffic control and dispatch operations.

While the National Transportation Agency can attempt to guard against such anti-competitive practices, a track owner could abuse its monopoly position in subtle ways. In addition, it is difficult for a regulator to determine a reasonable track charge that is fair to the owner but does not disadvantage the user.

A number of countries require their state-owned railways to develop separate accounts that identify the costs of the track and control components of their operations. The Council of the European Communities is asking member states "to ensure that the accounts for business relating to the provision of transport services and those relating to the management of railway infrastructure are kept separate. . . ."[12] The Council believes this separation will promote fair charges to travellers and facilitate cross-border movement by the carriers of member countries.

Appropriate legislation, combined with adequate enforcement of regulations, provides the most direct solution to problems of access.

By strengthening and broadening existing provisions on running rights, the federal government would be building on an approach that is well understood by the railways and the National Transportation Agency. Nevertheless, we are not entirely convinced that legislation and regulation will prove adequate. Where a railway has an interest in restricting access, the regulatory authority might find it difficult to ensure that the new entrant is provided with a neutral opportunity, including fair treatment by the dispatch system.[13] We expect that the track owner will have more information than the regulator, and the regulator will be at a disadvantage in attempting to enforce equal access.

Improving Access by Separating Ownership of Track and Carrier Operations

We considered the possibility of restructuring CN and CP to divide ownership of track and carrier operations (as in the road and air modes). Such a separation has its precedents:

- The earliest railways in the United States operated fixed ways that others paid to use, as did the other transportation modes of the era (turnpikes and canals).
- In 1989, the Swedish government split its state railway into two separate organizations: a public enterprise that is responsible for offering railway transportation services, and a second public agency, the National Rail Administration that is responsible for providing rail track and control systems. Sweden's restructuring was intended to put rail on a basis more comparable with the road mode, and the National Rail Administration is modelled on that country's National Road Administration. The Swedish government believes that separating track ownership from commercial carrier services, and the greater transparency resulting from the new arrangement, will increase pressure on the national rail carrier to improve operating efficiency. The government also hopes that, over the long term, new rail carriers will enter the market and consumers will benefit from the introduction of competition.

A system of separate ownership would result in the loss of savings, if any, associated with the joint provision of rail track and carrier

operations. Government would have to decide whether such savings are important enough to offset the benefits from enhanced competition. The available evidence, while limited, does not suggest that there are major economies when carriers own railway track.

While we believe it is feasible to establish a separate track corporation, a structural reform of this nature is a major undertaking. Sweden's experience is not entirely applicable to Canada, because Canadian track is owned by a number of public and private corporations, rather than just one public corporation. Rail restructuring is much less complicated when there is a single public carrier, and when the national government has the authority to implement the reorganization required to improve use of the track.

If the Government of Canada were to undertake such an initiative, and if it felt the infrastructure should be publicly owned, it would have to acquire track that it does not already own. This process could entail difficult negotiations with owners over compensation. Both CN and CP would be primarily freight carriers with neither owning railway track. At that point, CN should be privatized to create fair competition for CP, and the proceeds of the sale would help pay for the purchase of the CP infrastructure.

Determining appropriate charges for track use would also be difficult. CN and CP own extensive track in the United States. Track fees and charges at a level required to cover the costs of a track corporation might result in CN and CP diverting traffic to alternative U.S. routes. This diversion could be greater on some network segments (primarily traffic to and from the west) than on others (traffic that moves within Ontario, Quebec and the Maritimes).

Should a Separate Rail Track Agency be Public or Private?

If experience with enhanced track access is unsatisfactory and the federal government determines that separation of rail ownership and carrier operations should be implemented, the government would have to decide if track ownership would be best transferred to a Crown corporation or a private corporation. Whether public or private, the

new organization must be regulated in such a way that it could not abuse its monopoly position.

In the case of a private corporation, the federal government would have to put together a package that appealed to private investors and could attract the large amount of financial capital required. The federal government would otherwise have to make certain commitments to reduce the risks from unanticipated policy change that the corporation would otherwise face. With a Crown corporation, the federal government would not have to limit its freedom in this way. In addition, the federal government's extensive holdings of track and rights-of-way through CN and VIA Rail could be transferred to the public track agency and provide the assets required to launch its operations. We thus conclude that, should separation be favoured, a public track agency is likely to prove appropriate.

In Canada, separating ownership of rail track and carrier operations is more important as a freight issue than as a passenger issue, because freight traffic dominates Canadian rail activity. Freight transportation is not the focus of our mandate, and we have not attempted to investigate, or explore with the various parties involved, the full range of questions that must be answered before a decision on separation can be made. Nevertheless, we view effective open access and equal treatment of traffic as vital. Should the application of Recommendation 6.7 — that legislation on track access be strengthened and apply to passenger rail as well as freight — not prove satisfactory, then we would recommend that the federal government separate ownership of track and dispatch from carrier operations.

If the federal government decides that separation is necessary, the best approach may be a step-by-step introduction of change. The process could begin with a segment of the network that would be a good choice for rail rationalization. For example, a public track agency could be established with responsibility for CN's and VIA Rail's rights-of-way and track in the Toronto–Ottawa–Montreal triangle. At the same time, the federal government could negotiate with CP so

that the authority of the new agency could extend to all track in the region. The intention would be to rationalize track use in that region.

This first step would allow the federal government to test separation, and at the same time initiate rationalization of track use in the Toronto–Ottawa–Montreal triangle. If this experience shows that separation is beneficial, the scope of the track agency's operations could be extended to include the rail network running through Quebec and the Maritimes, where rationalization also seems warranted. The federal government could then consider a final phase of reform involving transferring track in the rest of the country to the track agency.

RAIL RATIONALIZATION

Rationalization is not a new issue. As far back as 1931, the Royal Commission on Railways and Transportation in Canada found significant duplications among CN and CP railway systems. The Commission noted that there were twice as many miles of track per capita in Canada as in the United States, and that changing markets, competition and technology had decreased the need for railway infrastructure.

Canada's railways still suffer from low traffic density. On all but a few routes, Canadian railways could handle many more trains on their tracks. There are two ways to improve the financial position of the railways: increase traffic and operations and rationalize the track system.

With respect to increasing traffic, we expect that when governments apply our recommendations concerning road pricing, the competitive position of the railways will improve. Some freight that now moves by truck would shift to rail.

Rationalization and joint track usage have been the subject of sporadic, unsuccessful negotiation between CN and CP for many decades. The *Canadian National–Canadian Pacific Act, 1933*, that followed the 1931 Royal Commission, encouraged cooperation between the

railways, including joint track usage. The NTA, 1987, included provision for joint track usage, but has not stimulated significant rationalization.

Rationalizing the track system could be approached in three non-exclusive ways that could vary from region to region. These are:

- line abandonment and joint track usage;
- divestiture of the local branch-line systems of each or both companies, and their reorganization as local short-line companies; and
- consolidation of CN's and CP's freight operations, either regionally or nationally.

Line Abandonment and Joint Track Usage

The distinction between line abandonment and disposition of rights-of-way should be clear. We have no quarrel with the right of a railway to abandon part or all of a line. Our concern is what happens to that corridor after it has been abandoned as a functioning line; in the past, too many corridors have been sold for commercial purposes or for usage other than transportation. We firmly believe that these should be conserved for future transportation use, for example in the form of linear parks, and that governments or other railways should have first call when corridors are abandoned.

To what extent might abandonment improve the financial positions of the railways? In terms of branch lines, abandoning the lines in the prairie network that compete with road to serve the grain industry alone would generate important savings. A recent estimate suggests that abandoning selected prairie lines could result in annual savings of about $25 million.[14] For the rest of the networks, the prospects for saving through abandoning local branch lines, as opposed to abandoning whole regional systems such as in the Maritimes, are limited to a few million dollars annually.

Joint usage of main lines would boost efficiency and savings for the railways more than abandoning low-density branch lines. Closing branch lines causes traffic to shift from rail to road, but main lines

could be rationalized with little loss of traffic. A more efficient railway track system might actually lead to an increase in the use of railway transport.

Substantial savings would occur if rationalization took place on the track that stretches from Winnipeg to the Ottawa Valley. For a capital investment of approximately $100 million, CN and CP could operate through this region over common track, saving 2,200 kilometres of mostly main-line track and eventually realizing savings of $50 million annually.[15]

We believe that this rationalization is desirable. We noted in our Interim Report, however, that line abandonment could lead to the loss of transportation corridors for future use.[16] Potentially important corridors in and near urban areas have already been lost through abandonment and cannot be replaced.

The *National Transportation Act, 1987*, contains a provision, which expires in 1993, whereby railway companies can apply to the National Transportation Agency to abandon up to 4 percent of their non-grain-related trackage annually. The Agency must agree to an abandonment application if the rail line is not economically viable and has no reasonable probability of becoming so in the future. As we noted in our Interim Report, under the NTA, 1987, the Agency determines the role and value of rail infrastructure in terms of its contribution to the movement of freight.[17]

The abandonment application procedures have recently been amended. A railway applying to abandon operation of a line must formally notify, among others, the federal and relevant provincial and municipal governments, other railways operating nearby and VIA Rail.

The legislated process does not provide for the long-term implications of the loss of track for passenger service or for rights-of-way for future transportation use.

We want to ensure that there are formal procedures for the disposal of rights-of-way after a rail line has been abandoned, and that this process gives governments an opportunity to acquire the rights-of-way if appropriate. Although railway officials told us that they offer abandoned rights-of-way to successive levels of government, the process is informal and inconsistent. In addition, the railways do not always put abandoned rights-of-way in urban areas up for sale. Instead, they retain and develop the lands commercially themselves. It is these urban rights-of-way that cause us the most concern.

We conclude from our review of line abandonment that:

- there should be formal procedures, regularly followed, by which all abandoned rights-of-way are offered to governments;
- governments should have established policies by which they are able to identify, acquire and retain rights-of-way that may be valuable for future use; and
- there should be rules to ensure that the price to governments of acquiring identified rights-of-way is reasonable, considering the historical use of the land as a corridor.

We believe that railways should be allowed to cease unprofitable activities, but rights-of-way that may be useful to others must be preserved.

Transport Canada has brought the concerns that were raised in our Interim Report to the attention of a federal-provincial steering committee that has been asked by the federal and provincial/territorial ministers of transport to identify a national rail network. The mandate of this committee includes reviewing policies and procedures to address concerns with rail line abandonment. Transport Canada has also indicated that it hopes to put in place an interim notice and response process and to develop long-term policy options. Although it is too early to say what the outcome of all this work will be, we believe that changes are required.

Therefore, we **recommend** that:

6.8 Any railway company be allowed to abandon any amount of track without a limit and that clause 159(4) of the *National Transportation Act, 1987* not be reenacted.

We further **recommend** that:

6.9 Adequate protection of rights-of-way of potential value as future transportation corridors be assured by requiring that:

(a) as a condition of track abandonment, the abandoned right-of-way be offered in all cases, formally and in writing, to each level of government (federal, provincial, local), in succession, and then to other railway companies at a price equal, in all cases, to the railway's historical acquisition cost of the land adjusted for inflation, with an adequate time period for response;

(b) the National Transportation Agency be a referee to ensure that the price at which the land is offered is reasonable;

(c) only if no government or railway company wishes to purchase the corridor could the railway either convert or sell the land for purposes other than transportation;

(d) all levels of government develop a policy, based on explicit criteria, for deciding which corridors they wish to retain; and

(e) governments or railway companies maintain land so acquired as a corridor. Should they no longer wish to maintain the corridor in the future, the land be first offered back to the railway from which it was purchased, at the original purchase price plus inflation.

ENDNOTES

1. Jose A. Gomez-Ibanez and John R. Meyer, "Toll Roads and Private Concessions in France and Spain," Interim Report for the U.S. Department of Transportation, February 1992.

2. U.S. General Accounting Office, *Airline Competition*, GAO/RCED-90-147, August 1990.

3. William B. Tye, "Competitive Access: A Comparative Industry Approach to the Essential Facility Doctrine," *Energy Law Journal* 8, 2 (1987).

4. The distinction is that an airport authority is responsible only for an airport, while a port authority operates a variety of facilities (which may include airports, harbours, bridges and toll roads).

5. Statement by Transport Minister John Crosbie in announcing new policy, "New Management for Canadian Airports," Transport Canada Information No. 61/87, April 9, 1987.

6. Gordon B. Hamilton, "Cost Competitiveness of Canadian Airports," paper presented to ATAC 57th Annual General Meeting, Vancouver, Canada, November 10–12, 1991. Additional data provided by Transport Canada.

7. *Report of the Auditor General to the House of Commons, Fiscal Year Ended 31 March 1985* (Ottawa: Supply and Services Canada, 1985).

8. Transport Canada, Ministerial Task Force on Aviation Matters, *Final Report*, 1992, p. 21.

9. New Zealand Ministry of Transport, *Land Transport System*, 1990.

10. See Council of Ministers Responsible for Transportation and Highway Safety, National Highway Policy Steering Committee, *National Highway Policy Study for Canada, Steering Committee Report on Phase 3* (Ottawa: September 1990).

11. See ADI Limited, *National Highway Policy User Benefits Analysis Final Report*, prepared for National Highway Policy Study Committee, 2567-4, (Ottawa: November 1989); and ADI Limited, Analysis of National Highway System Proposals, a report prepared for the Royal Commission on National Passenger Transportation, RR-12, March 1992.

12. *Official Journal of the European Communities*, Council Directive of 29 July 1991 on the development of the Community's railways (91/440/EEC), Section III, Article 6.

13. Train movements on modern rail networks are coordinated centrally, usually through the signal system. The dispatcher decides which trains proceed towards their destinations, and which trains must wait on sidings.

14. T. Reynolds, "Projected Cost Reductions and Efficiencies through Abandonment of Selected Rail Segments," *Proceedings of the 27th Annual Meeting of The Canadian Transportation Research Forum*, Banff, Canada, June 9–12, 1992.

15. These are rough estimates by Royal Commission staff, based on potential reduction in track length and average annual track costs per kilometre. Initially, these savings would not be fully achieved. Employment security provisions in the contracts of senior shopcraft and maintenance-of-way employees would come into play until these employees were reabsorbed or reached retirement.

16. *Getting There: The Interim Report of the Royal Commission on National Passenger Transportation*, (Ottawa: Supply and Services Canada, April 1991) pp. 208-209.

17. *Getting There: The Interim Report of the Royal Commission on National Passenger Transportation*, (Ottawa: Supply and Services Canada, April 1991) p. 209.

CHAPTER 7

PROTECTING THE ENVIRONMENT

INTRODUCTION

Passenger transportation affects the environment locally, nationally and globally. Noise pollution disturbs city residents and those living near airports; air pollution damages buildings and affects the health of people, animals and vegetation; and the greenhouse effect threatens the world's ecosystems.

One of the key objectives of our proposed passenger transportation framework is to achieve a system that automatically gives weight to the need to protect the environment. We believe that this can best be accomplished if users pay for the full costs of passenger transportation — including the environmental costs associated with different modes of travel.

At present, travellers and carriers do not pay for all the damage they cause to the environment. In fact, they cover only some of the costs of their transportation choices. Often, the decisions they make concerning how they will travel and which vehicle to purchase do not take into account the environmental repercussions of these choices. Meanwhile, others bear the costs of the damage done by travellers. As noted in Chapter 6, agencies that evaluate transportation investment proposals should consider the costs of environmental damage.

There are, however, many difficulties in trying to measure environmental damage, estimate costs and determine how users should be charged. We realize that protecting the environment may require more than charges to travellers. Regulations, particularly in the area of motor-vehicle emissions, have been instrumental in reducing gases and particulates that damage the environment.

We examined ways of assessing environmental damage and estimating costs. We asked ourselves how much governments should regulate and how much travellers should pay. Then we looked for solutions that would impose an even burden on each mode of travel and that would help Canadians achieve a balance between their passenger transportation needs and the need to protect the environment.

How Transportation Contributes to Environmental Damage

We studied environmental effects and conferred extensively with environmental experts. Much of the information we gathered, including how transportation contributes to environmental damage and the nature of that damage, can be found in Volume 2 of this report. In this chapter, we would like to focus attention on the three transportation-related environmental problems that we consider to be the most significant: low-level ozone, urban sprawl and global warming. Other significant transportation-related environmental problems, including those associated with carbon monoxide and particulates, receive very limited mention in this chapter because they are fundamentally problems of urban, rather than intercity, passenger transportation.

LOW-LEVEL OZONE INDUCING EMISSIONS

Low-level ozone, an important component of smog, is formed when two types of chemicals in fuel emissions — nitrogen oxides (NO_x) and volatile organic compounds (VOCs) — act together in the presence of heat and sunlight. Low-level ozone causes respiratory problems, particularly among asthmatics, and damages the foliage of crops and trees.

Transportation contributes about 40 percent of Canada's non-natural emissions of VOCs and 60 percent of its NO_x. Diesel-engined trucks and buses make a disproportionately large contribution, yet are subject to far less stringent emission controls than cars.

Although low-level ozone breaks down over a period of hours or days, concentrations can build up where industrial and transportation emissions of NO_x and VOCs are greatest. In addition, low-level ozone, which is wind-borne, can accumulate city by city, polluting entire regions.

In most of Canada's large cities, summer concentrations of low-level ozone occasionally exceed the maximum acceptable National Ambient Air Quality Objectives. In three regions of Canada, however, these concentrations regularly exceed acceptable levels during the summer months. These are the Lower Fraser Valley of British Columbia; the corridor between Windsor, Ontario, and Quebec City, Quebec; and the area surrounding Saint John, New Brunswick.

Ozone can be created locally and can also come from sources upwind. In British Columbia, the ozone is nearly all produced locally. In Southern Ontario and Quebec, the ozone created by local sources is supplemented by ozone from the Great Lakes states of the United States. In southeastern New Brunswick and Nova Scotia, nearly all the ozone moves in from the U.S. Atlantic seaboard, Quebec and Ontario. As mentioned, low-level ozone tends to break down into harmless components after a day or more, so shifting winds, variations in sunlight and other factors account for high pollution levels.

These three regions have been designated as "ozone non-attainment areas" by the Canadian Council of Ministers of the Environment. (Non-attainment areas do not meet Canada's National Ambient Air Quality Objectives.) The federal and provincial governments have targeted non-attainment areas for special control measures as part of a national NO_x/VOCs Management Plan (see Volume 2 for a description of current and announced control measures). In the decades ahead, if more action is not taken, additional regions of Canada could face similar problems.

URBAN SPRAWL

Non-attainment areas are often areas where land use and development patterns, transportation, and pollution are intimately tied together. For example, urban sprawl causes increased fuel consumption and exacerbates environmental pollution problems.

Non-attainment areas often have the following characteristics:

- development is dense;
- urban development spreads to rural areas rather than becoming more concentrated;
- the single-family, lower density, suburban housing pattern is specifically designed around the car and encourages its use; and
- more public transportation is provided than in attainment areas, but public transportation services are concentrated much more in the urban core. For example, transit use is very high in Toronto (use, per capita, is the second highest in North America, after New York City), but outside the city core, cars move the people with some help from buses.

The urban sprawl pattern has disadvantages for public transportation carriers, who require high population densities along their routes in order to be efficient. In turn, lack of public transportation encourages car use, and this becomes the easiest and seemingly most natural choice for short to medium-distance intercity trips.

GLOBAL WARMING

Although scientists continue to debate the effects of global warming, the Intergovernmental Panel on Climate Change has confirmed the existence of the phenomenon known as the greenhouse effect. The Panel agrees that human activities are creating increased atmospheric concentrations of greenhouse gases: carbon dioxide (CO_2), chlorofluorocarbons (CFCs), methane, and nitrogen oxides (NO_x). Transportation is a major source of CO_2 and CFCs.

CO_2 emissions: Transportation contributes about 25 percent of Canada's CO_2 emissions from non-natural sources, and these originate as by-products of the combustion of carbon-based fuels. Such emissions cannot be controlled by treating exhaust gases, but must be reduced through decreasing fuel consumption or using non-carbon energy sources such as solar energy and hydro-electric power or nuclear energy. Unlike the emissions that contribute to low-level ozone, CO_2 can last in the atmosphere for as long as 200 years. Therefore, the cycle of CO_2 increase and decrease is much longer, and its potential impact more persistent, than that of low-level ozone. Canada has adopted a goal of stabilizing total greenhouse gas emissions at 1990 levels by the year 2000. This requires a substantial reduction in CO_2 from the level that is anticipated if current trends continue unchecked.

CFCs: Transportation also adds CFCs to the atmosphere, primarily through leakage from vehicle air conditioners, which have recently contributed about 25 percent of total Canadian CFC emissions. CFCs play a major role in the destruction of the protective high-level ozone layer in the stratosphere (see Volume 2 for a summary of differences between high-level and low-level ozone). Canada is in the forefront of international action on CFCs, having made a commitment to eliminate CFCs by 1997. At present, manufacturers are starting to use other chemicals in car air conditioners.

The Canadian Climate Program Board predicts that, if global warming continues into the next century, Canada's climatic zones may shift northward and sea levels may rise; both effects would have economic and social consequences. Although scientific evidence is not clear regarding global warming, prudence suggests that efforts be made to further reduce fuel consumption. Such efforts can be successful. Despite an increase in traffic and the number of cars, total annual gasoline consumption in Canada today is lower than it was in 1975.

Assessing Environmental Damage

Scientists find it extremely difficult to measure the effects of transportation on the environment. Use of land for transportation disrupts wildlife habitats, but ecologists cannot gauge the full effects of these changes. Chemicals in vehicle emissions affect people, plants, animals and buildings, but medical scientists, botanists, biologists and chemists cannot determine with accuracy the relationships between doses of chemicals and responses in sickness or damages. Global warming is changing our weather patterns, but atmospheric scientists are unable to predict how much warming to expect, how regional temperatures will change, and how these changes will affect growing seasons, rainfall and sea levels.

Canadians experience the effects of environmental damage from transportation in unequal ways. For example, those living close to major airports must live with noise pollution from airplanes, even though they may never travel by air; their properties are also cheaper for the same reason — noise. Similarly, people who live close to freeways and railway tracks must live with noise pollution and lower property values. Farmers and foresters who work far from urban areas must deal with the effects of foliage damage from air pollution created many kilometres away. Those who live outside cities often travel further to get to educational, vocational, cultural and commercial services than do people living near the centre of the city, yet it is the city-dwellers who must live with the resulting air pollution, noise, disruption from traffic, and inconvenience.

It is difficult to estimate the costs of environmental damage. In rare cases, it is possible to make a direct link between cause and effect, and then estimate the costs. For example, when crop values are diminished due to low-level ozone, a market price for the loss can be calculated.

Some researchers have asked individuals what they would pay in hypothetical situations for improvements in environmental conditions. Others have suggested that clean-up costs be used as a basis for

estimating environmental damage. There are examples of public agencies' willingness to bill companies for the costs of treating chemical discharges into waterways. Unfortunately, this approach cannot be applied to all types of damage, particularly irreversible damage. What price can be charged for the loss of a species or in cases where clean-up options do not exist? How can a dollar figure be assigned to the damages caused by global warming? What value can be put on the social and psychological effects of environmental problems caused by transportation? Can a link be made between actions taken by travellers in one region and damage that occurs in another region?

Since researchers cannot advise governments, with certainty, on how much effort it will take to solve environmental problems, the amount of effort to expend remains a question of judgement. In other words, one must judge whether or not the damage reductions are worth the costs while being uncertain about both damage reductions and costs. The trade-offs between costs and damage reductions in current solutions may have to change as knowledge of environmental damage increases. As costs become more measurable, the basis for setting prices for environmental damage will improve.

It is therefore important that governments continue to study, monitor and set goals to reduce environmental damage at the local, provincial, territorial, national and international levels. In addition, more research funding should be directed toward the study of environmental damage effects and costs.

Controlling Environmental Damage

At present, there are three ways to reduce the environmental damage associated with transportation.

The first way is to reduce the amount of fuel emissions per unit of travel by improving the technology of vehicles — increasing engine efficiency, treating exhaust to trap or chemically eliminate pollutants, and reducing vehicle weight in order to lower fuel consumption.

The second way is to reduce the volume of traffic by encouraging travellers to switch from cars to public modes in situations where public modes are less environmentally damaging, to reduce the number of trips they take, or to shorten their trips.

The third way is to reduce the effects of damage with remedial clean-ups or by shielding those who are affected (with noise barriers, for example).

Controlling environmental damage is expensive. All three methods cost individuals either as travellers or as taxpayers. Individuals pay for environmental clean-up, motor-vehicle control equipment and its maintenance,[1] administering and enforcing environmental regulations, and subsidizing public modes of travel. Travellers also pay a cost in time and inconvenience if they change modes or types of travel, or relocate residences or places of work.

These costs are likely to increase if the controls on environmental damage become more stringent. The technology to improve fuel consumption or reduce engine emissions further may be very expensive.

Individuals and governments balance the benefits of travel against the costs of controlling environmental damage. Individuals do this when they make travel decisions, purchase vehicles and buy homes. Governments do this when they adopt measures to reduce environmental damage, thus supplementing and modifying individual decisions. Governments take measures such as these because they believe that:

- travellers, who create the environmental damage, do not adequately consider the damage to non-travellers when they make travel decisions;
- many individuals are unable to assess potential damage because of the scientific complexity and uncertainty associated with environmental causes and effects; and

- individual actions may not be extensive enough or coordinated enough to achieve the desired change.

COORDINATION AND COOPERATION

All levels of government should coordinate their approaches to environmental issues. We support the adoption of explicit goals, such as the national goals for reductions in CFCs, CO_2, NO_x and VOCs, for control of environmental damage. We believe, however, that current government decisions can be made more consistently and can achieve these goals at lower costs. We encourage governments to ensure that such goals are realistic, that all concerned are committed to the goals, and that the costs and effectiveness of measures taken to realize these goals are carefully and thoroughly examined.

Governments must be careful about when, where and how they apply environmental controls. For some problems, governments may have to look for regional or local solutions. This is particularly true for pollution problems that occur in specific locations or at certain times. For example, the concentration of carbon monoxide (CO) and diesel particulates is greatest in city centres when traffic is concentrated during windless conditions.

We are particularly concerned about low-level ozone damage in the Lower Fraser Valley in British Columbia, in the corridor between Windsor, Ontario, and Quebec City, Quebec and around Saint John, New Brunswick. As discussed earlier in this chapter, these three areas of Canada have concentrations of low-level ozone that regularly exceed acceptable levels during the summer. It may be costly and unfair to implement uniform national standards to ease this regional problem. The most cost-effective solutions may involve regional controls on vehicle use, travel restrictions at times of greatest damage, or controls on non-transportation sources. British Columbia recently addressed this issue by implementing annual vehicle emission control checks in the Greater Vancouver area. By forcing people to keep cars tuned-up, they are able to reduce emissions without adding special equipment.

Because these areas are especially vulnerable, we **recommend** that:

7.1 Governments consider regional solutions to ozone non-attainment areas, including special regional regulations such as speed limits or periodic motor-vehicle emissions testing for all classes of vehicles, and higher emissions surcharges at times of the year when ozone is a problem.

We recognize that it may not always be practical to administer and enforce a regional standard — for example, ensuring that all cars within a region are fitted with emissions-control equipment may be difficult. Governments must try to find a balance between obtaining low-level ozone reductions in target regions and imposing unnecessary costs on travellers outside those regions.

For other problems, the strategy for environmental controls must be as broad as possible, encompassing all sources throughout the country, and the world, and extending across all sectors. The potential damage from global warming brought about by CO_2 emissions cannot be solved only by local fuel conservation programs. It is a global problem, and all sources of CO_2 must be examined to find the most efficient and effective ways to reduce these emissions. We believe that the passenger transportation sector should do its part but not be penalized more than other sectors that also produce CO_2. Governments should examine which controls can be applied at the lowest cost for the greatest benefit.

An international strategy to control global warming is being developed under the United Nations Convention on Climate Change, signed by some 150 countries at the Rio Conference in June 1992. Canada's national goal to stabilize CO_2 emissions at 1990 levels by 2000 is more stringent than the commitment required so far under that convention.[2]

We therefore **recommend** that:

7.2 Canada continue to strive for development of an effective international strategy to control global warming, and seek to harmonize domestic policies and taxes with those of the international community.

PROTECTING THE ENVIRONMENT THROUGH REGULATION AND EDUCATION

In Canada, regulation and education play important roles in reducing environmental damage caused by transportation. Provincial and municipal governments have combined environmental objectives with those of urban and transportation planning. They regulate driving behaviour through traffic restrictions and parking controls, and run campaigns to persuade people to change modes or travel less.

The regulatory approach of the federal government includes controls on vehicle technology — primarily through setting motor-vehicle emissions standards, and obtaining voluntary agreements for improvements — particularly to meet fuel-consumption targets. The federal government also undertakes information campaigns to persuade travellers to change their travel behaviour.

This regulatory approach contributes substantially to lowering emissions. Regulators, however, often concentrate on what is easiest to administer and enforce, rather than on reducing damage for the lowest cost. For example, federal regulation focusses on motor-vehicle emissions, and, in particular, on passenger car emissions. As a result, pollution control is stricter for motor vehicles than for non-vehicular sources.

Governments, however, must be cautious when using a regulatory approach to reduce pollutants. While federal regulatory control of car

emissions has been successful, governments should pay equal attention to emissions from other transportation vehicles such as buses, trucks, trains, airplanes and ferries.

Therefore, we **recommend** that:

7.3 Governments continue to improve and apply regulations for effective control of environmentally damaging emissions. In doing so, they should ensure that:

(a) regulations be set so as to impose similar obligations (in terms of costs per unit of abatement) on each mode in a cost-effective manner;

(b) non-transportation sources of pollutants be treated similarly to those in transportation; and

(c) the costs of deciding, implementing and administering transportation regulations be paid for by the users of the transportation system.

Although urban transportation is beyond our mandate, we believe that Canadians should choose where they want to live on the condition that they pay the full cost of those choices. We note that if, as a result of Canadians facing the full costs of their choices, urban land-use patterns were to change, different travel behaviour might follow. For example, if development in a region were dense and consisted of mixed commercial and residential properties — unlike urban sprawl development — the following would likely occur:

- home-to-work trips would be far shorter, encouraging other means of commuting including walking and bicycling;
- densities would be higher making public transportation more viable;

- land values would be higher and parking scarcer and more expensive, discouraging car use and ownership; and
- the mix of residential and commercial establishments would encourage doing errands by means other than the car.

Reduced levels of car use would also lead to a greater use of any available public transportation for intercity trips. This would result in lower levels of emissions per capita.

PROTECTING THE ENVIRONMENT THROUGH PRICING

While regulations will continue to play a significant role in protecting the environment from pollution caused by travel, we do not believe that regulation alone will be sufficient. Regulations should be supplemented by charges to travellers, which provide an efficient way of encouraging travel behaviour that will limit damage to the environment. When travellers pay for the damages they inflict on the environment, they will make choices and may change their travel behaviour.[3] Some will travel less to save money. Others will switch to modes that are cheaper because of lower environmental charges. Still others will choose to pay the higher price to travel on the less environmentally friendly mode. Owners of transportation equipment and infrastructure will change their equipment or otherwise adjust to decrease the pollution they cause in order to reduce the environmental costs they have to pay, and, therefore, have to charge.

In addition, environmental charges will encourage transportation providers to conserve fuel or switch to less-polluting fuels. In all cases, travellers would choose their own mix of solutions at the least cost to themselves, but would take into account the damage they impose on the environment.

How should travellers be charged for the damage they inflict on the environment? Like many other aspects of passenger transportation, the issues are complex and the solutions are not easy. It is impossible to estimate the costs of all environmental damage precisely, and

therefore to charge travellers accurately for all the damage they cause.

It may be possible, with future technology, to charge passengers directly for the emissions of air pollutants and noise created by their vehicles. This may be done either through monitoring vehicles continuously or through monitoring the distances travelled and combining this with an emissions rating for particular vehicles. The technology to measure vehicle emissions and noise, however, is not yet in general use.

Emissions charges could be what is required to meet Canada's national goals for the environment. We suggest that a practical means of determining prices for emissions charges would be to estimate the charges required to meet Canada's national goals for reducing CO_2, NO_x and VOCs. When dealing with emissions charges, it is imperative that the following recommendation be read in conjunction with what we say in Chapter 17 on environmental charges based on global damages and their implications for international competition.

We believe that, for the immediate future, emissions surcharges should be placed on fuel sales.[4] Such emissions surcharges are presently the best and fairest means of charging passenger transportation users for the environmental damage they cause. If imposed at the same rate per unit of emissions from all sources, these surcharges would affect all modes and all fuel sources equally and would be fair. For NO_x and VOCs emissions, the surcharges would apply only in the ozone-sensitive regions, and only during those summer months when ozone levels are damaging. An alternative solution for NO_x and VOCs in sensitive regions might be vehicle registration fees based on estimated annual emissions from the specific vehicle.

We therefore **recommend** that:

7.4 Users of transportation pay for the environmental consequences of their actions, such as:

(a) actual government costs for creating policies and regulations to prevent damage;

(b) environmental clean-up costs or mitigation (e.g. noise abatement);

(c) compensation for those affected by environmental damage, where this can be determined; and

(d) best estimate of damage where costs cannot be compensated because it is not possible to accurately identify individually those who are affected by environmental damage or the extent to which they have been affected.

In some cases, estimates of the cost may not be available, but governments may continue to judge it prudent to set goals for pollution control, presumably guided by the social costs of the environmental damage in question. Such goals provide an alternative basis for establishing levels of charges.

We therefore **recommend** that:

7.5 Where environmental goals have been established in the absence of reliable information on damage costs, charges and/or changes in regulations be set at the levels expected to induce the behavioural change that will meet the goals.

7.6 Environmental emission charges be applied equally to all modes of transportation and to non-transportation sources, on as close to a per-unit-of-emission basis as practical.

We further **recommend** that:

7.7 Government clearly separate the revenue that comes from emissions charges from the revenue that comes from other passenger transportation charges, and ensure that:

(a) revenues raised from emissions charges be first used to clean up environmental damage from transportation and to compensate those affected, if they can be identified;

(b) remaining revenues be used to lower general tax rates; and

(c) revenues from emissions charges not be used for transportation system expansion or maintenance.

For example, compensation could take the form of screens around transportation structures to reduce noise levels or the provision of a safe means of crossing highways or railways. We also believe that it would be fair to use the funds to provide improved public transport in the inner city, where residents are affected disproportionately from traffic caused, in large part, by those living in the suburbs. Such funds could be used for research into pollution prevention and for education on protecting the environment.

Although urban and freight transportation are beyond our mandate, we believe that these principles of cost-effective regulations and emissions charges should be adopted in urban and freight transportation planning and in other sectors of the economy.

Comparison of Potential Emission Charges by Mode

For the purposes of illustration, we obtained estimates of emissions for the different modes and calculated the surcharges that might be required to meet Canadian government objectives of reducing CO_2 to 1990 levels in the year 2000, and reducing NO_x and VOCs in

non-attainment areas in summer. Cars, airplanes, buses and trains emit different amounts of the gases that contribute to air pollution and global warming. Table 7-1 and Chart 7-1 show emissions per passenger-kilometre on two sample intercity routes, a short trip from Toronto to Montreal and a longer trip from Saskatoon to Halifax, for the four passenger modes.

Table 7-1
Examples of Emissions by Mode on Two Intercity Routes

EMISSIONS PER PASSENGER-KILOMETRE IN GRAMS, 1989 — TORONTO TO MONTREAL							
Type of emission		Public transportation with current occupancy rates[a]			Public transportation with all seats filled		
	Car	Bus	Train	Airplane	Bus	Train	Airplane
CO	5.20	0.18	0.34	0.17	0.14	0.21	0.11
VOCs	0.94	0.05	0.14	0.10	0.04	0.09	0.07
NO_x	0.75	0.40	1.54	0.34	0.31	0.96	0.23
CO_2	128	30	76	220	23	47	148
EMISSIONS PER PASSENGER-KILOMETRE IN GRAMS, 1989 — SASKATOON TO HALIFAX							
Type of emission		Public transportation with current occupancy rates[b]			Public transportation with all seats filled		
	Car	Bus	Train	Airplane	Bus	Train	Airplane
CO	5.20	0.24	0.77	0.13	0.14	0.54	0.09
VOCs	0.94	0.07	0.32	0.08	0.04	0.23	0.05
NO_x	0.75	0.54	3.52	0.26	0.31	2.46	0.17
CO_2	128	41	173	167	23	121	113

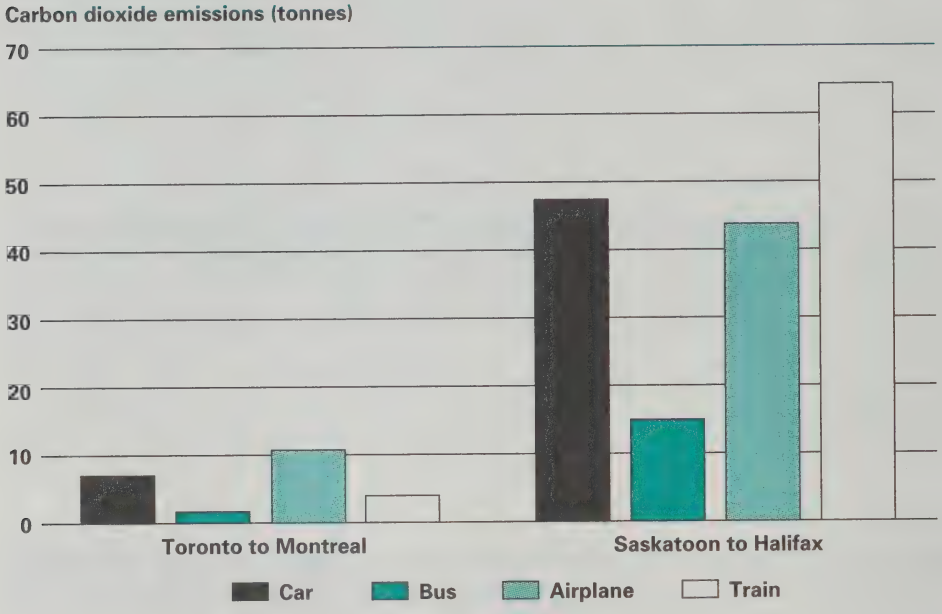
Sources: VHB Research and Consulting Inc., "Environmental Damage from Transportation," Volume 4 of this report, and Royal Commission staff estimates.

a. Rates at which seats are currently occupied on public transport vehicles are estimated for the Toronto to Montreal route at 77 percent for bus, 62 percent for train and 67.5 percent for airplane. For cars, the occupancy rate is 1.8.

b. On the Saskatoon to Halifax route, the estimated occupancy rates are 57 percent for bus, 70 percent for train and 67.5 percent for airplane.

Note: Only direct emissions are included, arising from the trip alone, with no inclusion of indirect emissions from equipment and infrastructure construction. All emissions calculations are based on current vehicles and equipment. If vehicles such as cars and trains were powered by electricity, emissions would depend on the source of electric power.

Chart 7-1
Carbon Dioxide Emissions per 100 Person-Trips, by Mode, Toronto to Montreal and Saskatoon to Halifax



Sources: VHB Research and Consulting Inc., "Environmental Damage from Transportation," Volume 4 of this report, and Royal Commission staff estimates.

Note: Only "direct" emissions are included, arising from the trip alone, with no inclusion of "indirect" emissions from equipment and facilities construction.

Table 7-1 shows that:

- on the shorter Toronto to Montreal trip, airplanes have the lowest emission of CO and NO_x, while buses have the lowest emission of VOCs;
- for both long and short trips, buses have the lowest fuel consumption and, therefore, the lowest CO_2 emissions;
- on the longer Saskatoon to Halifax trip, airplane emissions are lower per passenger-kilometre than on the shorter trip, while those of buses are higher due to lower occupancy and those of trains are higher due to the use of sleeping cars; and

- current-technology trains have higher emissions of NO_x than any of the other modes, and this would remain the case even if all train seats could be filled.

Tables 7-2 and 7-3 illustrate potential emissions charges and how they might differ by mode for the two trips, Toronto to Montreal and Saskatoon to Halifax. These sample routes are representative of all the types and lengths of trips taken on the transportation system.

We caution readers to be aware that the results shown in Tables 7-2 and 7-3 are extremely speculative. While the federal government has adopted national goals for global warming protection and for ozone control, a method for achieving them through emissions charges has not been designed thoroughly. Governments would have to set charges carefully to induce the appropriate responses by travellers. For our illustration, we have calculated the surcharges on the basis of the government pursuing its announced national goals, relying mostly on charging instead of additional regulation of emissions. As a result, our example charges are high.

For purposes of this illustration, we used a CO_2 charge based on $120 per tonne of carbon, which becomes $32.70 per tonne of CO_2 emissions, or 7.7¢ per litre of gasoline. This charge would apply everywhere, and year-round. For NO_x and VOCs, we made the assumption that charges would be imposed only in the ozone non-attainment areas, which include the whole of the Toronto to Montreal trip, but only a small portion of the Saskatoon to Halifax trip. The NO_x and VOCs charges should also be applied only during those periods when ozone levels become unacceptably high. We have assumed that, in order to be practical, the charges would need to be applied uniformly throughout the summer months (probably May through August). The illustrative charges in Tables 7-2 and 7-3, therefore, are different for winter and summer.

Table 7-2

Illustrative Emissions Charges, in Dollars per Person-Trip, Toronto to Montreal

Carrier	Winter	Summer		
	CO_2 charge ($)	CO_2 charge ($)	NO_x/VOCs charge ($)	Total ($)
Car	2.20	2.20	4.60	6.80
Bus	0.50	0.50	1.20	1.70
Train	1.30	1.30	4.50	5.80
Airplane	3.50	3.50	0.80	4.30

Notes: **For this trip, we have assumed the following:**

- **Toronto to Montreal emissions per passenger-kilometre are as estimated for Table 7-1, based on emissions by current vehicles at current average occupancies (the actual surcharge would vary with the fuel consumption and the occupancy rate of the particular vehicle);**
- **CO and particulate emissions are not priced for intercity trips, as their damage is urban;**
- **All levels of government declare it necessary to control ozone by reducing summertime emissions of VOCs and NO_x in this non-attainment area beyond the reductions scheduled in the NO_x/VOCs Management Plan, and to a level that they can forecast will be met if a charge of $5,000 per tonne is levied, on all sources in the region; and**
- **CO_2 is charged for separately at a rate of $33 per tonne, or $120 per tonne of carbon, an amount that, if applied to all sectors in Canada, is predicted to achieve stabilization at 1990 levels in 2000.**

The above are illustrative estimates of charges that would be associated with existing services. These charges would be lower if emissions were reduced through improved technology. In particular, as discussed in the text below, if trains powered by electricity were used, the charges applicable to trains could be very low (or nil) if the electric power were generated mainly (or entirely) from non-fossil-fuel sources.

The figures for the Toronto to Montreal trip show that:

- year-round charges for CO_2 would be lowest for bus passengers and highest for air passengers;
- summer charges for NO_x and VOCs would be lowest per passenger-trip for bus passengers and highest for car passengers;
- total summer charges at the assumed levels would be lowest for bus and highest for car;

- charges would not be large when compared with fares for the public modes;
- the winter charge for CO_2 emissions of $2.20 for a car traveller would amount to $3.80 per car (with about 1.7 occupants on average), or 7.5¢ per litre of gas if charged through a gasoline tax. The summer charge of $6.80 for a car traveller would amount to $11.80 per car, or about 23¢ per litre of gas;[5] and
- the summer charge for a car traveller would be only about $1.00 higher than that for a train passenger on this trip.

We recognize that environmental arguments are advanced in favour of introducing conventional or high-speed trains powered by electricity on this route. We obtained estimates of the possible electricity consumption of such trains and considered possible sources of that electricity. To the extent that the electricity could be supplied from hydro-electric plants or nuclear generating stations, trains would produce none of the CO_2 or air pollutants created by the other modes. For a high-speed train, if the electricity were generated from fossil-fuelled power stations, it would produce per passenger-kilometre about 64 grams of CO_2, 0.3 grams of NO_x and 0.8 grams of sulphur dioxide.[6] Using our illustrative charges, this worst case would create an environmental charge of about $3.60 per passenger-trip in winter and $4.50 in summer.[7] More reasonably, if the electricity was provided from fossil-fuelled plants in proportion to their forecast contribution to the Ontario and Quebec electricity grids in 2000, the surcharge indicated would be only about one tenth of these levels — that is, only about 40¢ per passenger-trip. For an electrified conventional train, power requirements per passenger-kilometre would be even lower, and emission surcharges correspondingly less.

Electrified trains would thus, on average, produce lower environmental costs than any other mode. However, this cost advantage would not be large as a portion of total trip costs. Furthermore, the estimates are only of damage from CO_2 and air pollutants, ignoring other environmental damage from hydro-electric and nuclear stations.

Table 7-3
Illustrative Emissions Charges, in Dollars per Person-Trip, Saskatoon to Halifax

Carrier	Winter	Summer		
	CO_2 charge ($)	CO_2 charge ($)	NO_x/VOCs charge ($)	Total ($)
Car	19	19	5	24
Bus	6	6	2	8
Train	25	25	8	33
Airplane	19	19	1	20

Note: **The emission factors per unit of fuel consumed are assumed to be the same as in the Toronto to Montreal case, but fuel consumed per passenger differs through different load factors and types of equipment. It is also assumed that the charge per tonne of NO_x and VOCs would only be imposed within the part of the trip through designated ozone-sensitive areas. Other assumptions are the same as for the Toronto to Montreal trip.**

The figures for the Saskatoon to Halifax trip show that:

- CO_2 charges would be lowest for bus passengers and highest for train passengers;
- NO_x and VOCs charges would be small relative to CO_2 charges, as most of the trip would be outside the ozone non-attainment areas; and
- charges in winter and summer would be lowest for bus passengers and highest for train passengers.

Although transportation will continue to contribute to environmental damage, our recommendations will limit this damage. Implementing regional solutions to ozone non-attainment areas, developing an international strategy on global warming, improving regulations on emissions control and charging fairly for environmental damage will all contribute to protecting Canada's environment.

ENDNOTES

1. The costs of vehicle-emissions controls are estimated to be about $500 per vehicle, or 0.5¢ per vehicle-kilometre annualized over an average vehicle-lifetime of about 160,000 kilometres.

2. The Convention's objective reads in part (Article 2):

   "The ultimate objective . . . is to achieve . . . stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

   Its "commitments" in Article 4 include:

   "Each of the developed country parties shall adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs. These policies and measures will demonstrate that developed countries are taking the lead in modifying longer-term trends in anthropogenic emissions consistent with the objectives of the Convention, recognizing that the return by the end of the present decade to earlier levels of anthropogenic emissions and other greenhouse gases . . . "would contribute to such modification. . . ." and

   "In order to promote progress to this end, each of these Parties shall communicate, within six months of entry into force of the Convention for it and periodically thereafter . . . detailed information on its policies and measures . . . as well as on its resulting projected anthropogenic emissions . . . with the aim of reducing individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases. . . . "

   United Nation's Framework Convention on Climate Change, New York, May 15, 1992.

3. Research has proven that collective reactions to gasoline prices are like the reactions for most goods: as the price goes up, the amount bought goes down. In the short term, it does not go down much: a 10 percent price increase might bring only a 2 percent reduction in sales; but over the long term — maybe a few years — the reduction is much larger, perhaps of the order of 8 percent.

   This research might seem contrary to experience. Prices have been continuously rising, but sales don't seem to be falling. This is because we are referring to real increases in prices, that is, in addition to general inflation, and to sales reductions as compared with the level of sales that would have occurred otherwise. When prices are changing routinely because of inflation, and growth in population and vehicle ownership is causing continuous increases in gasoline sales, it is not easy to recognize real price increases and the gradual reduction in sales they produce. But we are confident that the relationships will hold, and that if pollution charges are added to real gasoline prices, sales will be lower.

   Researchers cannot definitively explain the difference between the short-term and long-term effects of price increases, but they suggest that, in the short term, people are locked in patterns of business and social activities. They cannot adjust easily to price increases by driving less or immediately purchasing a different car. Over the longer term, however, when their car comes up for renewal they can replace it with one that is more fuel efficient, and they can change houses or jobs to alter their patterns of car use. They may or may not be aware that they are weighing the price of gas in all these decisions.

4. This would work most effectively for CO_2 because its emission rate per unit of fuel is constant. Charging for other air pollutants through fuel-price surcharges would be a less efficient way of changing people's behaviour. This is because the charges could not be tailored to each vehicle's actual emissions, but would have to be averaged for the entire class of vehicles using a particular fuel type — that is, gasoline-fuelled motor vehicles, diesel-fuelled motor vehicles, trains and jet aircraft.

   Such charges could not be reduced by a traveller's or carrier's actions to lower the amount of emissions per unit of fuel, though charges could still be reduced by limiting vehicle use. They would essentially constitute another incentive to reduce fuel consumption.

5. We remind the reader that if our recommendations were implemented in their totality, the result would be a more efficient passenger transportation system, and that while the cost to some travellers would go up, the overall cost to Canadians would be lower. We also caution the reader that this price increase is for gas used only in non-attainment regions in summer.

6. Estimates for a 300 km/hr service, with 75 percent load factor, requiring about 0.10 kilowatt hours per passenger-kilometre.

7. This includes a cost of $6,000 per tonne of sulphur dioxide, derived from the report to the Royal Commission by VHB Research and Consulting Inc., cited in Table 7-1.

CHAPTER 8

IMPROVING SAFETY

Introduction

Airplane, bus, train and ferry accidents often command eye-catching headlines, but in reality, public transportation is much safer than private transportation. During 1990, 103 Canadians died as a result of an air, train or ferry accident, while 3,957 travellers died and 263,000 were injured in road accidents.[1]

We studied the safety of different modes of travel, and the health and damage costs of accidents. We found, overall, that the safety of our transportation system is improving. The number of accidental deaths from all transportation was lower in 1990 than it was in any year since 1962. Nevertheless, transportation accidents of all kinds cause grief and suffering for many Canadians and are a substantial burden on our society in health and damage costs.

Our principle — that travellers should pay the costs of transportation — means that they should also pay the costs of accidents that are associated with their mode of travel. We have therefore examined safety and accident costs by mode, and who pays for the cost of accidents, safety measures and programs.[2]

Intercity Passenger Transportation Safety

We measured safety by comparing fatalities for each mode relative to passenger-kilometres of travel. We limited our measure to fatalities because comprehensive data on injuries are available only for road vehicles.

Two different measures of safety in passenger transportation are used in this chapter:

- passenger fatality rate: the number of passengers killed per billion passenger-kilometres; and
- fatality rate in passenger operations: the number of persons killed per billion passenger-kilometres, including passengers, crew and others such as bystanders, cyclists and occupants of other vehicles.

AIRPLANE SAFETY

How safe is commercial aviation? Commercial air travel in Canada is organized into three categories of carriers based primarily on the number of passengers carried annually:[3]

- Level 1 carriers each transport more than one million passengers annually;[4]
- Level 2 carriers each transport 50,000 to one million passengers annually;[5] and
- Levels 3 to 6 carriers include all other small commercial operations.[6]

Table 8-1
Fatalities Due to Commercial Airplane Accidents, 1981–1990

Level of carrier	Number killed
Levels 1 and 2	68 (57 passengers, 11 crew)
Levels 3 to 6	539 (270 passengers, 269 crew)
Total	**607**

Source: **Transportation Safety Board of Canada.**

From 1981 to 1990, 607 people died in accidents involving Canadian-owned commercial air carriers. The figures for levels 1 and 2 carriers in Table 8-1 include single accidents at Cincinnati, Ohio, in 1983[7] and Dryden, Ontario, in 1989 that dramatically raised the fatality rate in the years those accidents occurred. Such accidents make it difficult to calculate fatality rates that indicate trends in aviation safety. Nevertheless, to identify the risks to air travellers in recent years, we averaged total fatalities relative to the number of passenger-kilometres travelled over the decade (Table 8-2).

Table 8-2
Commercial Airplane Fatalities per Billion Passenger-Kilometres, 1981–1990

Level of carrier	Percentage of passenger-kilometres flown by all commercial carriers	Passenger fatality rate (passenger deaths only) per billion km	Fatality rate in passenger operations (passenger and crew deaths) per billion km
Level 1	88.0	0.05	0.05
Level 2	8.5	0.7	1.0
Levels 1 and 2	96.5	0.11	0.13
Levels 3 to 6[a]	3.5	14.0	28.0

Sources: **Fatalities are from Transportation Safety Board of Canada. Passenger-kilometres are from Statistics Canada, Catalogue No. 51-002 and 51-006.**

a. **Passenger-kilometres are available only for levels 3 and 4 carriers, but passenger traffic carried by levels 5 and 6 operators is likely so small that it would not affect these rounded fatality rates.**

The figures in Table 8-2 show that:

- Level 1 carriers had a passenger fatality rate equivalent to one death in every 20 billion passenger-kilometres;[8]
- Levels 1 and 2 carriers had a passenger fatality rate equivalent to one death every 9 billion passenger-kilometres; and
- Levels 3 to 6 carriers had the largest passenger fatality rate, equivalent to one death every 0.07 billion passenger-kilometres.

While fatality rates for all commercial aviation fell between 1981 and 1990, the observed improvement in safety was among smaller carriers. Accidents involving levels 1 and 2 carriers are so rare and vary so much from year to year that it is impossible to determine whether or not the carriers' safety improved during this decade. Nevertheless, it is clear that levels 1 and 2 carriers remain much safer than levels 3 to 6 carriers.

From 1981 to 1990, 556 people died in accidents involving private airplanes. There are no figures for passenger-kilometres flown for private aviation. The only indicator of annual activity is the total number of hours flown for all private aircraft regardless of the number of passengers. This figure reveals that private flying has declined during the last decade. The number of fatal accidents per year also appears to have fallen, but the figures are so variable that it is not possible to establish any trends in the accident rates during the decade.

Risks in private flying can be compared with those of commercial aviation, using average rates of fatal accidents per million flying hours. As Table 8-3 shows, there were 33 accidents per million hours of private flying and only 1 accident per million hours for levels 1 and 2 carriers.

Table 8-3
Number of Fatal Accidents per Million Flying Hours,[a] 1981–1990

Type of carrier	Number killed per million flying hours
Private flying	33.0
Levels 1 and 2 carriers	0.9
Levels 3 to 6 carriers	17.0

Source: **Transportation Safety Board of Canada.**

a. **This ratio is a customary measure in the aviation industry of airframe and engine performance, but note that it refers to the number of accidents (crashes) in which deaths occurred, rather than the number of people killed, used otherwise throughout this chapter. This is believed to be appropriate as no measure of passenger activity is available for private flying.**

No official statistics exist for fatality rates per passenger-kilometres for private aircraft, and no distinction can be made between their use for transportation and recreation. However, based on the number of flying hours, the fatality rate for private aircraft appears to be much greater than the 20 deaths per billion passenger-kilometres for cars.[9]

Has airline deregulation affected commercial air carrier safety? Airline deregulation — the removal or relaxation of economic regulation of airline operations, such as easing entry to markets and removing price constraints — began in Canada in 1984. Regulation of airline safety, however, remained and has been strengthened since then. To date, there is no evidence that economic deregulation has affected airline safety. We note, though, that it takes a substantial period of time (a decade or more) to identify changes in safety trends, because accidents involving larger carriers are so rare.

Since we did not have sufficient statistics to determine with confidence how airline deregulation has affected Canadian air carrier safety, we turned to research in the United States, where economic deregulation began in 1978, six years before it was introduced in Canada. U.S. research suggests that deregulation in that country has not affected airline safety, and that accident rates continue to follow the downward trend established before deregulation.[10] Furthermore, the increase in air travel, which resulted partly from travellers flying instead of driving, substantially reduced the number of trips by car (a more dangerous mode) and improved overall safety.[11]

TRAIN SAFETY

We found it difficult to determine any meaningful trends in fatalities per passenger-kilometre for intercity passenger trains. Deaths in collisions and derailments are too rare to determine accurately the safety trends for short periods. For example, there were no passenger deaths in eight of the years from 1981 to 1990. In 1986, however, there were 16 passenger deaths and 8 crew deaths in the Hinton, Alberta, crash (Table 8-4).

Table 8-4

TRAIN FATALITIES PER BILLION PASSENGER-KILOMETRES, 1981–1990

Passenger fatality rate (passenger deaths only)	Fatality rate in passenger operations (deaths of passengers, crews and others)[a]
0.8	13.8

Sources: Fatalities are from Transportation Safety Board of Canada. Passenger-kilometres are from Statistics Canada, Catalogue No. 52-003 and 52-215, and unpublished data.

a. 175 people died in rail-grade crossing accidents, usually in motor vehicles, and 133 were killed trespassing on rail property. Many trespassing deaths may have been suicides, but the Transportation Safety Board's statistics do not distinguish them.

BUS SAFETY

Statistics describing the safety of intercity bus operations are scarce. Only five provinces — Saskatchewan, Manitoba, Ontario, Nova Scotia and Newfoundland — have recorded intercity bus accidents separately from those of city transit buses.

Table 8-5 presents data from these five provinces, but the available information does not cover the decade from 1981 to 1990 — only the three years from 1985 to 1987. Clearly, these data do not provide a sufficient basis to identify any long-term trends.

Table 8-5

FATALITIES AND INJURIES INVOLVING INTERCITY BUSES, 1985–1987
(SASKATCHEWAN, MANITOBA, ONTARIO, NOVA SCOTIA, NEWFOUNDLAND)

	Passenger	Driver	Others[a]	Total
Deaths	0	0	7	7
Injuries	73	27	165	265[b]

Source: Transport Canada special tabulation.

a. Primarily drivers and passengers in cars and light trucks that collided with buses.
b. Only 4 of the bus occupants and 17 of the other victims were injured severely enough to require hospitalization.

We could not obtain the number of passenger-kilometres travelled by bus for the five provinces and, therefore, could not accurately determine the rates of death and injury per vehicle-kilometre and passenger-kilometre. Based on data for the number of bus trips and kilometres travelled throughout the entire bus industry, we have estimated an average fatality rate for this three-year period. From 1985 to 1987, there were roughly two deaths per billion passenger-kilometres for all victims, whether passengers, drivers or others. Although there were no passenger deaths in the five provinces from 1985 to 1987, bus crashes can cause passenger fatalities.[12]

We have made a rough estimate of bus safety in order to compare it with the other modes: across the whole country and over a longer period of time, the true number of fatalities from travelling by bus could be placed between 0 and 50 percent of all bus-related deaths. This results in a passenger fatality rate of 0.0 to 1.0 deaths per billion passenger-kilometres (Table 8-6).

Table 8-6
Estimated Intercity Bus Fatalities per Billion Passenger-Kilometres, 1985–1987

Passenger fatality rate[a] (passenger deaths only)	Fatality rate in passenger operations (deaths of passengers, crew and others)
0.0–1.0	2.0

Source: Passenger-kilometres are from Royal Commission staff estimates.

a. Not calculated from actual fatalities, but estimated as noted in the text.

The majority of victims of bus accidents are not the bus passengers but the drivers and passengers of cars and light trucks involved in the accidents. Improvements to cars and light trucks and seat-belt use have assisted occupants of those vehicles to avoid and survive crashes. As cars and light trucks continue to become safer, travel by intercity bus will be safer primarily for others, but also for bus passengers.

FERRY SAFETY

There were only six passenger deaths on ferries from 1981 to 1990, four of which were suicides. Crew deaths were even more rare. In all ferry operations, crew deaths averaged one third of the number of passenger deaths.

The annual numbers of fatalities on ferries are much too small and variable for trends to be recognized, or risks to be computed with confidence. Combining the average fatalities per year during the decade with the estimated traffic of 850 million passenger-kilometres in 1988, we were able to estimate the risks. Excluding suicides, the fatality rate in ferry operations (in crew, as well as passengers) was about 0.5 deaths per billion passenger-kilometres. The passenger fatality rate was 0.2 deaths per billion passenger-kilometres (Table 8-7).

Table 8-7
Ferry Fatalities per Billion Passenger-Kilometres, 1981–1990

Passenger fatality rate (passenger deaths only)	Fatality rate in passenger operations (deaths of passengers and crew)
0.2	0.5

Sources: Fatalities are from Transportation Safety Board of Canada. Passenger-kilometres are from carrier annual reports and Royal Commission staff estimates.

CAR SAFETY

People driving private cars, vans and light trucks account for around 80 percent of intercity travel and 98 percent of the deaths related to intercity travel. Based on available data, we have calculated the passenger fatality rate and the fatality rate in passenger operations for 1989 (Table 8-8).

Table 8-8
Car Fatalities per Billion Passenger-Kilometres, 1989

Passenger fatality rate (drivers and passengers)	Fatality rate in passenger operations
10.0	13.0

Sources: Highway car fatalities are from Transport Canada. Passenger-kilometres are from Royal Commission staff estimates.

While the high rate of fatalities from road accidents concerns us, there are positive trends in road safety. The growth in fatalities has been much less than the growth in traffic. Although there are 14 times as many cars on the roads today as there were in 1930, the number of road deaths has only tripled. Improvement has been especially rapid in the past 20 years. Since 1973, the risk of death from car use has fallen faster than traffic has grown. The result is that the number of people killed has decreased annually.

Comparison of Safety by Mode

Table 8-9 illustrates the passenger fatality rate and the fatality rate in passenger operations for all modes.

Table 8-9
Estimates of Recent[a] Intercity Fatality Rates by Mode (per Billion Passenger-Kilometres)

Mode	Passenger fatality rate[b]	Fatality rate in passenger operations[c]
Air — Level 1 carriers[d]	0.05	0.05
Air — Level 2 carriers[d]	0.7	1.0
Air — Levels 3 to 6 carriers[d]	14.0	28.0
Train	0.8	13.8
Bus	0.0–1.0	2.0
Ferry	0.2	0.5
Car	10.0	13.0

Sources: Tables 8-2, 8-4, 8-6, 8-7 and 8-8.

a. Based on the 1980s as a whole or recent years in 1980s; see text and source tables.
b. Includes only passengers killed.
c. Includes passengers, crew and bystanders killed during passenger operations.
d. Includes all Canadian-registered carrier operations, domestic and international.

The figures show that:

- It is safer to travel on Level 1 air carriers than on any other mode.
- Cars cause about 12 times as many passenger deaths over the same distance as trains; at a minimum, 10 times as many deaths as intercity buses that operate on the same road system; and about 90 times as many deaths as levels 1 and 2 air carriers combined.
- Travel using major airlines, buses, trains or ferries is safer than travel by private car or private airplane. Private flying is probably much more dangerous than intercity car travel.

Table 8-9 includes only system-wide averages. The risks of travel also depend on the type of trip and its length. When governments contemplate transportation investment, they should take into account these system-wide safety rates, and should recognize that other factors, such as type of trip, can affect the contribution to safety of individual projects. We believe that traffic on intercity routes would, on average, be safer if some travellers switched from travelling by car to bus, train, or airplane. There might also be safety gains if some travel shifted from train to airplane, or from bus to airplane.

The Costs of Accidents

Most estimates of losses caused by transportation accidents are for road accidents.

In this section, we use Transport Canada's calculations of the property damage, lost work and health care costs associated with all road accidents and casualties. They are as follows:

Property damage costs: Data come from the claims records of insurance companies, and include allowances for unclaimed damage.

Lost work costs: Data come from durations of disability and average expectations of lifetime income, with allowance made for unpaid work performed in or outside of the home.

Health care costs: Estimates of these costs are derived primarily from records of payment by provincially owned motor-vehicle insurance administrations in British Columbia and Quebec.

Table 8-10 illustrates the estimated minimum loss per victim for death or injury. The losses arise mainly from lost work (including unpaid work at equivalent market values).

Table 8-10
Estimated Minimum Average Losses per Victim (Road), 1990

Severity of injury	Loss per victim ($)
Fatal	330,000
Non-fatal	10,000

Sources: J.J. Lawson, "The Costs of Road Accidents and Their Application in Economic Evaluation of Safety Programs," Transportation Forum of the Roads and Transportation Association of Canada, V.2 (1980), pp. 53-63; J.J. Lawson, *The Valuation of Transport Safety* (Ottawa: Transport Canada, May 1989) Report TP 10569.

Table 8-11 provides data on the components of costs, averaged per accident. Because accidents on average have more than one victim, the average costs per accident are higher than those per victim. There are about 115 fatalities for every 100 fatal accidents, and nearly 150 injured victims for every 100 injury accidents.

Table 8-11
Estimated Minimum Average Losses per Accident by Type of Loss (Road), 1990

Class of accident	Number of accidents	Health care ($)	Work loss ($)	Property damage ($)	Total ($)
Fatal	3,440	(few)	400,000[a]	10,000	410,000[a]
Injury	178,854	2,000–3,000	12,000	10,000	25,000
No injury	650,000	nil	nil	5,000	5,000

Sources: J.J. Lawson, "The Costs of Road Accidents and Their Application in Economic Evaluation of Safety Programs," Transportation Forum of the Roads and Transportation Association of Canada, V.2 (1980), pp. 53-63; J.J. Lawson, *The Valuation of Transport Safety* (Ottawa: Transport Canada, May 1989) Report TP 10569.

a. "Work loss" and therefore "totals" are uncertain.

Table 8-12 estimates the minimum total losses for all road accidents in 1990, indicating that health care accounted for $500 million, work losses for $3.5 billion, and property damage for $5 billion.

Table 8-12
Estimated Minimum Total Losses in All Accidents by Type of Loss (Road), 1990

Class of accident	Number of accidents	Health care ($ billions)	Work loss ($ billions)	Property damage ($ billions)	Total ($ billions)
Fatal	3,440	(few)	1.4	(few)	1.4
Injury	178,854	0.5	2.1	1.8	4.4
No injury	650,000	nil	nil	3.2	3.2

Sources: J.J. Lawson, "The Costs of Road Accidents and Their Application in Economic Evaluation of Safety Programs," Transportation Forum of the Roads and Transportation Association of Canada, V.2 (1980), pp. 53-63; J.J. Lawson, *The Valuation of Transport Safety* (Ottawa: Transport Canada, May 1989) Report TP 10569.

The value of improved safety can be determined by estimating what people are willing to pay to reduce or avoid the risk of death. To do this, calculations are made using the following sources:

- additional wages received by workers in risky jobs;
- amounts paid by consumers for safety devices; and
- amounts individuals say they would pay to reduce a risk.

Some researchers have suggested that the value of life is in the $1 million to $3 million range. The debate on the value of life remains unresolved. The result is that governments around the world plan safety investments using different values.[13]

Transport Canada currently uses $1.5 million as a value per death avoided. If this amount reflects the social costs of the grief and suffering caused by an accident, as well as the costs of physical damage, lost work and health care, it would raise the total estimated annual accident cost shown in Table 8-12 from $9 billion to $14 billion.

Who Pays for Accident Costs?

Transportation vehicle users, owners and carriers today pay for 95 percent of the costs that result from property damage and work loss caused by road accidents. They pay through:

- mandatory third-party liability insurance to cover the losses of others in accidents;[14]
- personal collision insurance, which is optional;
- payment of deductible amounts in their insurance policies; and
- payment for uninsured damages.

Travellers pay the cost of accidents if their insurance compensates all losses fully and if the annual premium accurately represents the expected loss per year. The insurance company charges an annual premium based on the expected loss that year. In this manner, travellers facing similar risks share the costs occurring in any one year.

Do travellers pay for all the accident costs they incur? Not entirely, for three reasons:

- Insurance companies do vary the premium rates with different accident experiences but not by enough to avoid all cross subsidization. They spread risks too broadly among travellers with different accident experiences. While the *Canadian Charter of Rights and Freedoms* and some provincial legislation deter insurance companies from varying their rates according to sex and age, there remains scope for greater differentiation of insurance rates according to such factors as previous accident claims and traffic violations, area of residence, model of vehicle and annual distance travelled.
- Compensation to victims is not complete. Insurance pays only for losses deemed to have occurred, and the method for determining such losses differs from province to province. For example, the motor-vehicle insurance agency in Quebec provides generous

compensation for income losses to victims who are not employed. In Ontario, the no-fault system has low limits on many classes of compensation. Other provincial or territorial insurance systems also have caps on levels of compensation.

- Some accident costs are paid by others and not by those responsible. This is particularly true of health care costs, which are paid primarily by taxpayers. In 1990, the total health care cost from accidents was about $500 million (Table 8-12). Of this total, about $300 million was paid by provincial health-insurance plans, and only $200 million was recovered from motor-vehicle insurance companies.

The $300 million not recovered from transportation users is small in relation to total accident losses of $9 billion, and represents only 5 percent of total accident damage. Charging this amount to users would add 0.25¢ per vehicle-kilometre, or about $40 per vehicle per year to insurance premiums.

Who Pays for the Cost of Accident Prevention?

INFRASTRUCTURE DESIGN AND SERVICES

When transportation providers design infrastructure to accommodate traffic capacity, they also build in a substantial amount of safety. The design of runways includes lengths and widths that are safe for landings and take-offs, and the design of roads has alignments, shoulders, and medians to provide safe driving conditions. Transportation infrastructure also includes navigation equipment, road barriers, markings and traffic control devices — all designed for both capacity and safety. Some services, such as emergency response systems, are strictly safety-oriented.

In general, the infrastructure provider bears the initial costs of design and safety features. Who ultimately pays depends on the extent to which the infrastructure provider tries to recover costs from travellers.

In general, taxpayers pay for the unrecovered costs of government-provided infrastructure through federal, provincial, territorial and municipal taxes.

REGULATION OF OPERATORS AND PERFORMANCE

Government regulation of vehicle operators and vehicle performance is based on concerns that the marketplace alone cannot protect society's safety interests. For example, there are regulations to:

- protect innocent bystanders from reckless operators;
- protect passengers on public transportation from risks over which they have no control;
- protect vehicle purchasers who are unable to ascertain the safety performance of vehicles and equipment;
- overcome manufacturers' resistance to the expense of incorporating safety innovations in their equipment; and
- ensure that individuals protect themselves. For example, they require car drivers and passengers to use seat belts, motorcyclists to wear helmets, and children to use seats with child restraints.

In general, travellers today do not pay directly for the costs that governments incur in developing, monitoring and enforcing regulations. These costs include administering registration systems, testing vehicles and craft, and, most significantly, enforcing traffic regulations. In 1987, the most recent year for which we have data, the cost of police enforcement in Canada for safety regulations was approximately $450 million.

RECOMMENDATIONS

As set out in Chapter 4, safety is an objective of the passenger transportation system. Therefore all safety costs should be incorporated into the price paid by travellers in each mode.

The health care system in Canada is intended to provide universal coverage. User-pay is consistent with this principle. We believe that charges can be levied on specific activities that contribute to health care costs. This will reduce the funds that need to be provided to the health care system from general tax revenues and health care taxes and premiums. The Canadian taxpayer also bears most of the government cost of developing, monitoring and enforcing regulations that promote transportation safety. We believe that travellers should also pay for these costs.

We therefore **recommend** that:

8.1 Travellers pay for all safety and accident costs, including:

(a) health care costs related to passenger transportation currently borne by the health insurance system; and

(b) the cost of safety services provided by governments.

Provincial and territorial authorities may already be setting their vehicle licence fees to include regulation costs, particularly for police enforcement. If they are doing so, these costs are not evident to the public. We believe that it is feasible for the provinces to account for those costs more specifically and to include them in the prices they charge to transportation users.

Until recently, Transport Canada used widely differing values for the different modes in assessing safety improvements and evaluating spending proposals. For example, the values of life and of various injuries used in aviation safety decisions were several times higher than those used in road safety decisions. Whether this difference in values led to any large distortion in government spending by mode is not clear. We think it likely, however, that government spending priorities would have been different if, for example, the aviation values had been used to assess investments, regulations and other policies across all modes.

Furthermore, it appears that the provinces also made spending decisions on improvements for road safety based on Transport Canada's road values. Had aviation values been used instead, highway safety investments might have increased substantially.

This possible federal bias towards aviation safety and against road safety may be eliminated now that the Department has proposed a uniform value for all modes.

To ensure this, we **recommend** that:

8.2 All responsible agencies use comparable values for injury and loss of life when evaluating spending proposals for safety improvements in different modes.

ENDNOTES

1. Other accidents in private vehicles are excluded from these figures (for example, those killed or injured in private flying, private boating and non-passenger shipping).

2. For more detailed information on the modes of travel, general developments in safety, and comparisons of safety risks by mode, see Volume 2.

3. The following statistics describe the safety of Canadian-registered carriers, including their foreign as well as domestic operations, and do not represent operations in Canada of foreign carriers. Note that carriers can also be designated as level 1 or 2 on the basis of tonnes of freight carried.

4. This category includes the two major airlines, Air Canada and Canadian Airlines International Ltd., and two feeder airlines, Air BC and Time Air.

5. This category currently includes 24 major (feeder and charter) air carriers, including for example, Nationair, Canada 3000 Ltd., Air Nova and Air Ontario.

6. This category currently includes some 844 smaller operators, including such companies as Air Creebec, Labrador Airways and Athabaska Airways. Only a minority of these companies appear to provide scheduled passenger service. Few data are available on the almost 600 operators in levels 5 and 6.

7. These statistics include accidents to Canadian carriers whether occurring in Canada or abroad.

8. A death rate of 0.05 per billion passenger-kilometres converts to 1 death per (1 billion ÷ 0.05 =) 20 billion passenger-kilometres.

9. In the decade 1981 to 1990, 9.6 million hours of private flying time were logged. If the aircraft averaged 250 to 300 kilometres per hour and 2 to 3 passengers, the 556 private-flying deaths during the decade would indicate a fatality rate of 60 to 120 deaths per billion passenger-kilometres.

10. Some U.S. observers had been concerned that deregulation would increase accident risks because traffic from the safer major carriers would switch to less-safe commuter carriers. This fear has not been substantiated. While switching has occurred, most traffic shifted to larger commuter carriers, whose accident rates were below the average for commuter carriers.

    Also, the higher fatality rates for commuter carriers reflect, in general, their shorter trip lengths and greater number of take-offs and landings, which is when airplanes are at most risk of crashing. Following deregulation, commuter airlines became part of the hub-and-spoke pattern of airline routing, whereby travellers fly to a central airport (the hub) and change planes to travel to other destinations via the spokes. The somewhat unexpected result was that the overall number of stops on a typical passenger's flight was reduced, thereby improving the commuter carriers' safety.

    Overall, researchers conclude that, while the increase in commuter traffic possibly worsened average risks per passenger-kilometre compared with what might have been achieved without deregulation, air safety continued to improve.

11. See L.F. Bylow and I. Savage, "The Effect of Airline Deregulation on Automobile Fatalities," *Accident Analysis and Prevention* 23 (5), October 1991, pp. 443-52.

12. Verbal communication from those responsible for Transport Canada's motor vehicle accident investigation teams.

13. Until recently, different values were even used within Transport Canada. Aviation investment analysts placed a value on death avoided that was several times higher than the value used in evaluating motor vehicle regulations and highway investments. Uniformity was established when the Department adopted a standard value of $1.5 million (in 1991 dollars). That figure is essentially a median value among those previously used, and Transport Canada makes no claim to have resolved the problems of measuring the value of life.

14. There are provincial variations regarding insurance. Some provinces have no-fault insurance programs: Ontario for all third-party damage, Quebec for all injury, and others with elements of no-fault in agreed payment schedules for specified damages.

    In addition, British Columbia, Saskatchewan and Manitoba have provincial insurance companies for all motor-vehicle insurance, and Quebec has a provincial scheme for injury damage, leaving property damage to private-sector insurance companies. All provinces have no-fault hospital-medical insurance schemes that provide health care for victims regardless of who was responsible for the accident.

CHAPTER 9

EASING THE WAY: ACCESS TO TRANSPORTATION FOR PEOPLE WITH DISABILITIES

Introduction

Our public hearings and review of submissions made us keenly aware that many Canadians with disabilities must struggle to gain access to transportation services. For example, some feel cut off from public transportation because it is difficult to find appropriate seating or to get on and off buses, trains and airplanes. Others have problems moving around terminals, hearing announcements or reading signs. For many, travel becomes so arduous that they are unable to use public transportation at all.

Canadians with disabilities believe that equal access to transportation will allow them to lead more independent and productive lives. When these Canadians spoke with us about their difficulties with the transportation system, many said that they are unable to travel to educational, vocational, cultural and commercial facilities in and beyond their communities. They asked for the same access, comfort and dignity that other Canadians take for granted. They also made numerous suggestions on how access to the passenger transportation system could be improved.

The Current Situation: Frustration and Progress

THE PEOPLE MOST AFFECTED

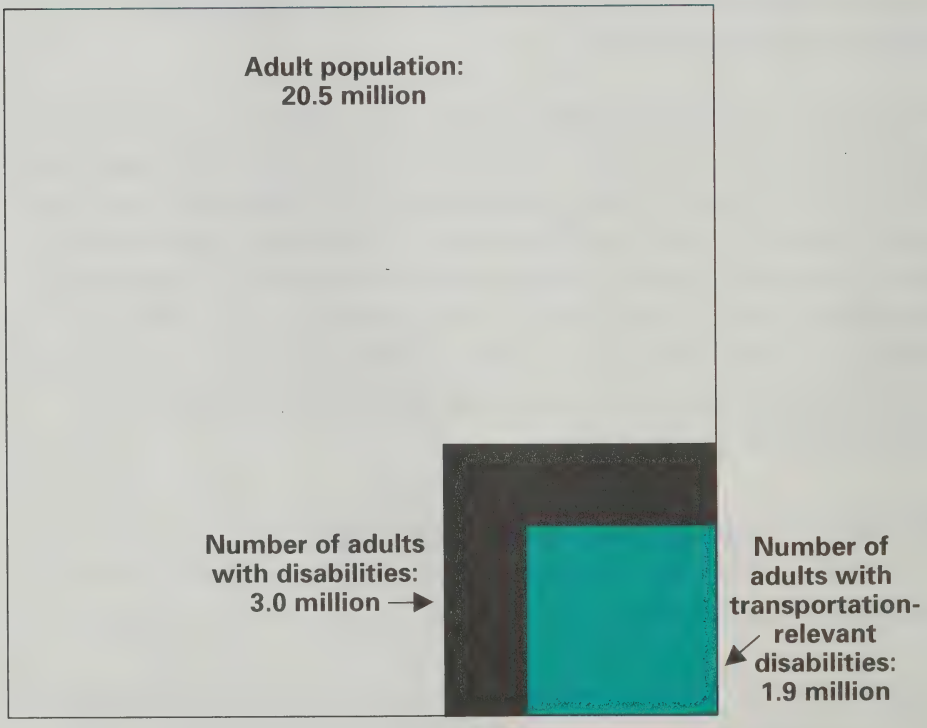
Chart 9-1 shows the relationship between the adult Canadian population, the component composed of people with disabilities, and the number of Canadians in this smaller population who have

transportation-relevant disabilities.[1] This latter group accounted for nearly 10 percent of the adult population, and 63 percent of adults with disabilities (or about 1.9 million people) in 1990.[2]

The amount of change required to improve accessibility for people with disabilities differs depending on the nature of the disability. In some cases, specialized training of transportation personnel is sufficient; in others, additional or modified equipment is necessary.

Table 9-1 provides an estimate of the number of Canadians with transportation-relevant disabilities, by type of disability. In 1990,

Chart 9-1
Number of Adults with Disabilities and with Transportation-Relevant Disabilities, 1990



Source: Hickling Corporation, *Transportation for People with Disabilities: A Policy Review and Analysis*, a report prepared for the Royal Commission on National Passenger Transportation, RR-01, March 1991.

adult Canadians who have to use wheelchairs or walkers when they travel numbered an estimated 132,660, or 7.1 percent of those with transportation-relevant disabilities.

Table 9-1
Number of Persons with Transportation-Relevant Disabilities, by Type of Disability, 1990

	Number	Percent[a]
All Canadians aged 15 and over with transportation-relevant disabilities	**1,879,615**	**100.0**
Mental disability	714,398	38.0
Hearing impairment	648,780	34.5
Sight impairment	417,990	22.2
Speech impairment	159,843	8.5
Wheelchair or walker use	132,660	7.1
Blindness	42,176	2.2
Disability unspecified	37,052	2.0

Sources: **Hickling Corporation, using data from Statistics Canada's Health and Activity Limitation Survey, 1987, with projections to 1990; *Transportation for People with Disabilities: A Policy Review and Analysis*, a report prepared for the Royal Commission on National Passenger Transportation, RR-01, March 1991, p. 5.**

a. **Figures will add to more than 100 percent because some people have multiple disabilities. Figures include people living in institutions but exclude those confined to the home (an estimated 37,600).**

Today, Canadians over 65 years old make up only 11 percent of the population but account for nearly 37 percent of those with disabilities.[3] By the early part of the next century, that 11 percent will rise to 18 percent — about 6 million people. It is likely that there will be a proportionate increase in the number of Canadians with disabilities.[4] This poses challenges for governments today, and for transportation providers who must plan for the future use of transportation infrastructure and services.

EXPECTATIONS FOR IMPROVEMENT IN ACCESS

There have been several pieces of legislation in Canada and the United States in recent years that raised expectations of rapid improvements in access to transportation for people with disabilities. In Canada, Parliament passed the *National Transportation Act, 1987*, which states that no carrier or mode of transportation under federal jurisdiction "so far as practicable" should allow "an undue obstacle to the mobility of persons, including those persons who are disabled."[5] The Act also gives the National Transportation Agency responsibility for "eliminating undue obstacles in the transportation network governed by this Act to the mobility of disabled persons."[6] In the United States, Congress passed the *Americans with Disabilities Act of 1990*. With respect to passenger transportation, this Act requires carriers to meet, over specified time periods, standards of accessibility for people with disabilities.[7]

In Canada, people with disabilities expected that the Canadian legislation plus the influence of the American legislation would bring about quick and considerable improvements in their access to passenger transportation. This did not happen. It has taken five years for the federal government to publish, for comment, proposed regulations aimed at improving access to transportation services for people with disabilities. These proposed regulations apply only to the domestic carriage of people with disabilities in aircraft with 30 or more passenger seats and to programs for carrier personnel training.[8]

WHAT PROGRESS HAS BEEN MADE?

People with disabilities and those who support their efforts to improve accessibility are putting pressure on governments and industry in different countries to recognize that they are entitled to equality with those who do not have a disability. In the United States, for example, Vietnam veterans' groups were active in the movement that led Congress to enact the *Americans with Disabilities Act of 1990*.

In Canada, several pieces of legislation address issues of importance to those with disabilities. Two that provide a measure of protection are the *Canadian Charter of Rights and Freedoms* and the *Canadian Human Rights Act*.[9] The provisions relevant to transportation, however, require the traveller with a disability to seek access, rather than placing the onus on service providers to ensure it. Furthermore, under this legislation, knowledge of lack of access is not sufficient grounds to seek redress — a person with a disability must first have been refused access. In contrast, the *National Transportation Act, 1987* provides authority to initiate action to require transportation carriers to eliminate undue obstacles.

Government and industry are improving access, but progress is slow. Although legislation and regulation provide incentives, we have found that improvements are often begun hesitantly and implemented slowly. We note, however, the following efforts on behalf of travellers with disabilities.

The National Transportation Agency[10]

In line with the responsibilities given to it in the *National Transportation Act, 1987*, the Agency has initiated several activities:

- The Agency issued several individual orders to improve access after complaints were lodged.[11]
- The Agency reported on May 27, 1991 on an inquiry into the policies of Canadian air carriers regarding people with disabilities.[12] The inquiry found that one airline had a policy of not accepting travellers with certain disabilities on specific aircraft and asked the airline to comment on the inquiry's finding that this policy may constitute an "undue obstacle to the mobility of disabled persons."

  In general, the inquiry found that the policies of large carriers do not appear to pose major problems to passengers with disabilities. It noted, however, that these policies are discretionary and subject to change by the companies without notice, and could lead to

obstacles to the mobility of travellers. The inquiry suggested that future obstacles could be avoided if an overall policy with uniform terms and conditions for all air companies were put in place.

- The Agency announced an inquiry on March 19, 1991 into the accessibility of ferry services under federal jurisdiction. This inquiry is expected to recommend regulations that remove barriers to mobility that arise from the construction or design of ferry equipment and terminals, operating policies, training of ferry staff and communication of information to people with disabilities. The inquiry issued its interim report on January 17, 1992, and requested further comments, suggestions or new information from ferry operators and other interested parties.[13]

- Another inquiry is examining the accessibility of Canada's inter-provincial bus system. This inquiry, which commenced in the spring of 1992 and includes public hearings in centres across the country, will report to the Minister of Transport in the spring of 1993.[14]

- On March 21, 1992, the Agency published its proposed regulations in two areas.[15] The first area covers the services to be provided to people with disabilities travelling in airplanes with 30 or more passenger seats. The second area discusses the training to be provided to personnel employed by all federally regulated carriers and terminal operators to enable staff to assist travellers with disabilities in the most appropriate ways.

Recent Legislative Initiatives

On May 5, 1992, the Secretary of State tabled Bill C-78, which was aimed at improving accessibility to various services for people with disabilities by amending six Acts. The Acts are the *Canada Elections Act*, the *Access to Information Act*, the *Privacy Act*, the *Criminal Code*, the *Citizenship Act* and the *National Transportation Act, 1987*.

The bill was passed on June 18, 1992. The preamble to the *National Transportation Act, 1987* (NTA, 1987) now includes access for

people with disabilities as part of the overall objectives for Canada's transportation system.[16]

In the news release announcing the tabling of the Bill, the Secretary of State noted that the NTA, 1987 amendment was in addition to the recent pre-publication of two sets of regulations to improve access to the federally regulated transportation system. He announced that "Additional CDRC [Canadian Disability Rights Council] proposals for improving transportation accessibility will be considered as part of an independent review of the *National Transportation Act, 1987* to be completed next year."[17]

The Secretary of State also indicated that Treasury Board will strengthen and promote its policy regarding the way in which the federal government communicates with persons with disabilities. This should result in more information concerning government programs and services — including transportation services — becoming available in alternative formats such as braille, large print, computer-readable diskettes and TDDs (Telecommunications Devices for the Deaf).

Federal Government Programs

The federal government has provided funding for demonstration projects, workshops, communications projects and research to improve accessibility for people with disabilities. In 1990, funding for these projects totalled $1.5 million. One major demonstration project for intercity busing was funded by Transport Canada and implemented through Canada Coach Lines between the Ontario cities of Kitchener, Cambridge, Hamilton, St. Catharines and Niagara Falls. Use of this service, however, was low.[18]

The National Strategy for the Integration of Persons with Disabilities, announced in the fall of 1991, provides $24.6 million over a five-year period to help carriers improve access to their vehicles, and to develop training programs that encourage employees of federally regulated carriers to develop more positive attitudes and practices towards people with disabilities.[19]

Municipal, Provincial and Territorial Government Programs

Although municipal governments are not generally concerned with intercity transportation, we recognize that they play an important role in ensuring that people with disabilities are able to reach air, rail, bus and ferry terminals.

Accessible taxis and para-transit are generally the responsibility of municipal governments but are, in many instances, funded jointly with provincial governments. Although provincial governments have acted in various ways to improve access, most of their funding goes for para-transit services that provide specialized transportation, such as vans with wheelchair lifts, in urban areas.

Other provincial and territorial activities have included financial support for vehicle retrofits of hand controls and lifts, special parking permits, transportation assistance for people with disabilities in rural areas, and demonstrations of wheelchair-accessible taxis.

Industry Initiatives

Canada's major scheduled airlines, their affiliates and other independent airlines have voluntarily put in place services to assist travellers with disabilities. These services include reduced fares for attendants on flights within North America; in-flight wheelchairs and oxygen; wheelchair-accessible washrooms on many aircraft; and a toll-free telephone number in Canada for those with a Telecommunications Device for the Deaf.

For people with disabilities, access to major ferry and rail services is generally easier than to intercity bus services. Many ferry, rail and major bus companies do not charge for an attendant accompanying a person with a disability.

Recommendations

While governments and industry have taken steps to improve access to intercity passenger transportation for people with disabilities, still

more must be done. We make the following recommendations so that the pace of improvement will increase.

RIGHTS TO ACCESS

We firmly believe that the transportation independence of all Canadians is important. When people with disabilities have access to jobs and educational facilities, they have a better chance of becoming productive and participating citizens who add to the vitality and diversity of Canadian society.

Therefore, we **recommend** that:

9.1 Governments establish a goal that all travellers in Canada have access to public transportation in a safe, reasonably comfortable and dignified fashion, irrespective of physical or mental ability.

9.2 The National Transportation Agency establish minimum national standards of passenger accessibility. As with other related initiatives, these should be developed in consultation with groups representing people with disabilities, carriers and operators of transportation infrastructure.

MAKING EQUIPMENT AND INFRASTRUCTURE ACCESSIBLE

We recognize that there are many obstacles to providing accessible transportation for people with disabilities. Currently, people with transportation-relevant disabilities form only 10 percent of Canada's adult population. Even though that percentage is expected to rise, the proportion of Canadians with disabilities who wish to travel will remain low compared with the rest of the population. As a result,

their demand for specialized transportation services may never be enough to lead to the provision of these services on a purely market-driven basis. In addition, individual point-to-point services and modification of equipment and services to improve accessibility — especially for the few travellers with ambulatory disabilities — are expensive.

The range of physical abilities that should be considered when providing access to passenger transportation services has been expanding. We wish that all obstacles to accessible transportation could be removed immediately, but recognize that imposing costly, immediate requirements upon Canadian carriers could undermine their viability.

At present, it may be more practical for some modes to operate accessible services parallel to existing public transportation (for example, the para-transit bus services in some municipalities). We believe, however, that people with disabilities should be as fully integrated into Canadian life as possible, and that one system to handle all travellers should be the long-term goal.

We believe that improved accessibility can often be accomplished at modest additional cost, by changing operating rules, sensitizing carrier staff, improving the design of new equipment and infrastructure, and modifying existing equipment and infrastructure. Other changes, unfortunately, are more costly.

Therefore, we **recommend** that:

9.3 Carriers and providers of infrastructure begin now to ensure that their specifications for new equipment and infrastructure will provide people with disabilities with continuing improvements in accessibility to their services. They should also implement, where practicable, retrofitting programs for their equipment and infrastructure.

Implementing this recommendation will result in substantial improvements in access for most individuals who currently find intercity travel either difficult or impossible. In some cases, further efforts are needed to ensure that the technologies and operating procedures devised to assist travellers with disabilities are appropriate, yet cost-effective.

We want to ensure that regulations dealing with accessibility for people with disabilities lead to continuing improvements.

Therefore, we **recommend** that:

9.4 The *National Transportation Act, 1987* be amended to require that the National Transportation Agency take more active responsibility for ensuring that transportation services become more accessible to those with disabilities.

CARRIER COSTS

Improving accessibility for travellers with disabilities will undeniably add costs to carrier operations, which will be passed on to all travellers. We considered how our recommendations for the treatment of travellers with disabilities would affect carriers' operations in a competitive market, and wanted to ensure that the modes do not face unforeseen costs in the short term.

Therefore, we **recommend** that:

9.5 The National Transportation Agency, in taking more active responsibility for ensuring that transportation services become more accessible to those with disabilities, give carriers and operators of transportation related infrastructure:

(a) the freedom to decide how best to meet performance standards, rather than giving them detailed directions on how accessibility is to be achieved; together with

(b) a reasonable period of time to improve accessibility to new equipment and to infrastructure.

ATTENDANTS AND IDENTIFICATION CARDS

We are aware of the stress and frustration that people with disabilities often experience because of administrative obstacles when trying to obtain or use specialized services. Some carriers, for example, have required clients with disabilities to obtain documentation regarding their ability to travel before accepting them as passengers, and sometimes required that this documentation be shown before each trip. Other carriers have insisted that passengers with disabilities must travel with an attendant, even though the passenger did not feel that an attendant was needed. On the other hand, for some people with disabilities, safe and comfortable travel can only be achieved with the help of an attendant.[20]

Whatever the special needs or services required by people with disabilities, we feel that these should be determined privately, prior to the trip. Wherever possible, we would like to eliminate what are sometimes embarrassing discussions at check-in counters and other points of departure about special arrangements and services.

Government, industry and groups representing people with disabilities should develop a mechanism that allows travellers with permanent

or long-term disabilities to eliminate the need for discussion and questioning on each travel occasion.

We recognize that the condition of an individual with a permanent disability is not necessarily stable and, in some cases, the requirement for an attendant could change. The mechanism created should allow for periodic reviews of some decisions. One way of handling decisions relating to the needs of travellers with disabilities could be through the use of coded identification cards.

Therefore, we **recommend** that:

9.6 Through consultation among groups representing people with disabilities, carrier associations and the National Transportation Agency, a mechanism such as a coded identification card system be devised that would indicate quickly to carrier personnel the kinds of services needed by each traveller with a disability, including whether or not the traveller requires an attendant for safety or other reasons.

Coded identification cards could:

- identify those travellers requiring assistance with such activities as boarding, eating and using the washroom;
- indicate whether a traveller requires an attendant on some or all types of trips;
- indicate whether the need for an attendant applies to one or more modes of transportation;
- identify those travellers who do not require an attendant, so that such passengers are not refused access because they are unaccompanied; and
- be valid for use on all carriers.

We recognize that there may be situations where a carrier requires that, for safety reasons, a person with a disability be accompanied by an attendant.

Therefore, we **recommend** that:

9.7 The National Transportation Agency be appointed as the referee to mediate quickly disputes over the need for an attendant. In situations that are difficult to decide, the safety of all travellers, including the traveller with the disability, should be given primary consideration.

9.8 When the National Transportation Agency or the carrier concludes that, for safety reasons, an attendant is needed during a trip to assist an individual with a disability, the attendant's fare be borne by the carrier. Otherwise, the traveller should bear the cost. To ensure consistency, carriers should coordinate their policies in this area.

TRAINING OF TRANSPORTATION PERSONNEL[21]

During our hearings and in the written submissions we received from groups representing people with disabilities, we were told many times how important the attitudes of transportation personnel were in their dealings with travellers with disabilities. We learned that negative and uncooperative attitudes often result from lack of knowledge, experience or training on the part of transportation staff.

Therefore, we **recommend** that:

9.9 Carriers ensure that personnel who are in a position to assist travellers with disabilities be trained to deal with such passengers with sensitivity and understanding.

COMFORT

Travellers with disabilities need both access to transportation infrastructure and services and the ability to travel with comfort and dignity. We recognize that levels of comfort for travellers with disabilities may not be equal to those for travellers without disabilities, but we believe that carriers must show reasonable efforts to improve these levels.

INTERCITY BUSES

We are concerned that intercity buses, which are provincially regulated, are not always as accessible as airplanes, trains and ferries, which are federally regulated. Differences exist among the provinces and territories in their efforts to improve transportation access. We want to see improved accessibility to this important mode of passenger transportation — and a reduction of the disparities across the country.

Therefore, we **recommend** that:

9.10 Provincial and territorial governments implement more-uniform and adequate minimum accessibility standards for intercity buses for travellers with disabilities, or, if that does not occur, the federal government take back its delegated responsibility for nationally applied accessibility standards in order to ensure more uniformity.

COORDINATION OF EFFORTS

Various committees and groups provide a forum for the discussion of accessible transportation. The federal Minister's Advisory Committee on Accessible Transportation is composed of groups representing individuals with physical and mental disabilities as well as representatives from the transportation industry such as air and bus carrier associations, VIA Rail and Marine Atlantic Inc. The National Transportation Agency also has an equipment accessibility advisory committee, whose members include representatives of people with disabilities, and air, rail, bus and ferry carriers.

Over the next few years, a delicate balance must be struck. While it is in everyone's interest in the long term to improve the integration of people with disabilities into Canadian society, in the short term some changes can be implemented more quickly than others. In recognition of this, we believe that advisory committees, with members representing a broad spectrum of interests, will play a critical role in finding this balance. For instance, we recognize that improving accessibility to small vehicles may be more difficult or proportionately more costly than doing so with large ones. And yet we also do not want to undermine the development of a highly flexible system to meet the transportation needs of all Canadians (including those living in sparsely populated areas) by creating a bias against small vehicles such as minivans and small aircraft.

In addition, members of these committees can bring to the government's attention examples of where government policies and regulations in non-transportation areas impede improved accessibility to transportation. We believe that these advisory committees provide an important communications link in the development of accessible transportation for those with disabilities.

Therefore, we **recommend** that:

9.11 Canadians with disabilities, governments, carriers and manufacturers actively use advisory and coordinating groups to ensure that new services, equipment and infrastructure adequately serve those for whom they are intended, and to ensure that Recommendations 9.1 to 9.10 are implemented.

Access to passenger transportation will allow Canadians with disabilities to lead more independent and productive lives. We believe our recommendations will help ensure that access. When people with disabilities have more access to educational and vocational facilities, they will become more independent and productive. The Canadian economy will benefit and this will go a long way to offset society's expenditures on improvements. In other words, an investment in accessibility has good potential for return.

ENDNOTES

1. The adult population includes people 15 years of age and over. People with transportation-relevant disabilities are those who, because of a physical or mental condition, cannot use one or more passenger transportation services, or experience more than average difficulty doing so. See Hickling Corporation, *Transportation for People with Disabilities: A Policy Review and Analysis,* a report prepared for the Royal Commission on National Passenger Transportation, RR-01, March 1991, p. 3.

2. These data are drawn from a survey carried out by Statistics Canada in 1986 and 1987 and reported in *The Health and Activity Limitation Survey. Highlights: Disabled Persons in Canada,* Catalogue No. 82-602, March 1990. The survey was repeated in 1991 and the data are being released in phases. Several questions were added to the transportation section of the questionnaire. These data are scheduled for release in the summer of 1993.

3. These data are also from Statistics Canada's *Health and Activity Limitation Survey* of 1986 and 1987. The 1991 survey data relating to the discussion of the size of the population with disabilities will be available in the fall of 1992.

4. As mentioned in our Interim Report, disability increases dramatically with age in the "over 65" category — that is, from 36.7 percent for those aged 65 to 74 years, to 53.6 percent for those aged 75 to 84, and to 82.1 percent for those over 85 years of age. See *Getting There: The Interim Report of the Royal Commission on National Passenger Transportation* (Ottawa: Supply and Services Canada, April 1991), p. 114.

5. Section 3.(1) of the *National Transportation Act, 1987.* This is reprinted in Volume 2 of this report.

6. This responsibility is given in sections 63.1 to 63.3 of the *National Transportation Act, 1987.* The sections are reprinted in Volume 2 of this report.

7. Further details of the U.S. accessibility standards for persons with disabilities are noted in Volume 2 of this report.

8. Further details regarding these regulations may be found in Volume 2 of this report.

9. The relevant sections of the *Canadian Charter of Rights and Freedoms* and the *Canadian Human Rights Act* are reprinted in Volume 2 of this report.

10. Further details of the Agency's activities are included in Volume 2 of this report.

11. These agency orders are noted in Volume 2 of this report.

12. National Transportation Agency of Canada, *Communiqué,* May 27, 1991.

13. Kenneth A. Mozersky, Anne M. Hampel and Paul Lacoste, *Interim Report of the Inquiry into Level of Accessibility of Ferry Services* (Ottawa: National Transportation Agency of Canada, January 17, 1992).

14. National Passenger Transportation Agency of Canada, *Communiqué,* March 11, 1992.

15. *Canada Gazette,* Part I, March 21, 1992, pp. 706-24.

16. The preamble now reads as follows (addition in italics):

    3.(1). It is hereby declared that a safe, economic, efficient and adequate network of viable and effective transportation services *accessible to persons with disabilities* and making the best use of all available modes of transportation at the lowest total cost is essential to serve the transportation needs of shippers and travellers, *including persons with disabilities*, and to maintain the economic well-being and growth of Canada and its regions and that those objectives are most likely to be achieved when all carriers are able to compete, both within and among the various modes of transportation, under conditions ensuring that, having due regard to national policy and to legal and constitutional requirements. . . .

17. Secretary of State of Canada, news release 92-010, May 5, 1992.

18. The purpose of this demonstration project was to assess the demand for an accessible intercity bus service and the economics of such a service. During the first 21 months of the project, 242 trips were made by people with disabilities (an average of 12 trips per month). Of these trips, 97 percent were made by passengers in wheelchairs. Forty-one people with disabilities used the service but two individuals made 47 percent of all the trips. The number of trips taken by people with disabilities equalled approximately 0.04 percent of the total trips taken. Further details are provided in Volume 2 of this report.

19. Further details are provided in Volume 2 of this report.

20. The proposed National Transportation Agency regulations published on March 21, 1992, indicate that "an air carrier shall accept the determination made by or on behalf of a person that the person does not require any extraordinary service during a flight." In this case, however, "extraordinary service" means "any service related to a disability that is not required by [the regulations] to be provided by an air carrier or any service that is not normally provided by an air carrier."

21. On March 21, 1992, the National Transportation Agency published its proposed regulations on the training to be provided to personnel employed by carriers and transportation related premises and facilities to enable them to assist travellers with disabilities in more appropriate ways. These have not yet been put into effect.

CHAPTER 10

APPLYING THE PRINCIPLES TO CARRIERS: AN OVERVIEW

INTRODUCTION

In previous chapters, we set out our principles and applied them to the providers of infrastructure and to governments, who are responsible for promoting environmental protection and transportation safety and for ensuring that the needs of people with disabilities are addressed. In this and the next four chapters, we apply our principles to the providers of passenger transportation services. In Chapters 11 to 14, we deal exclusively with public carriers — firms offering services to the public. We discuss the changes in federal and provincial/territorial policies that are necessary to achieve pressures for efficient performance. In addition, we set out transitional mechanisms for carriers requiring time to adjust to our principles. In this chapter, however, we also note the role of private carriers — individuals and firms that provide their own transportation using private cars and aircraft.

PRIVATE CARRIERS

In Canada, private passenger carriers include the users of about 10 million cars, 3 million vans and light trucks, and 10,000 private aircraft.[1] In addition, passenger travel to points not served by road, mostly small islands and settlements along rivers and lakes, is provided by private boats.

Taxpayer expenditure for private boat passenger travel, as distinct from recreational boating, fishing and freight shipping, is not substantial. Operators usually know local waters well and require few navigational aids, and they pay fuel (mostly gasoline) tax. Taxpayer involvement with the private car and private plane is more important.

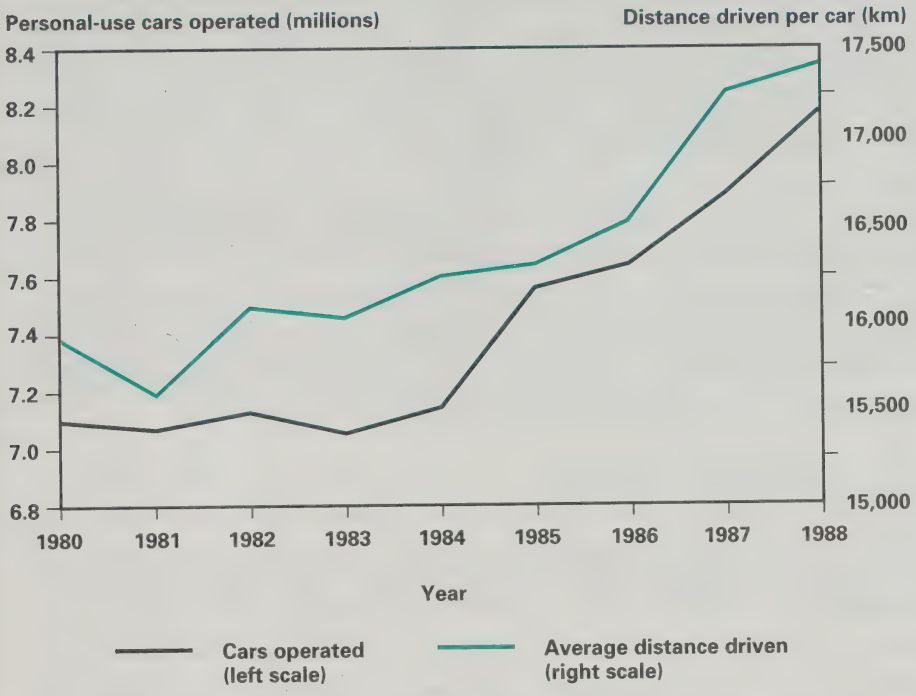
TRAVEL BY PRIVATE CAR

Statistics show that the car is Canadians' preferred mode of intercity travel:

- in 1991, about 83 percent of all households owned one or more cars (including vans and light trucks), and 39 percent of all households owned two or more cars;
- in 1990, 68 percent of the population and 88 percent of the population 16 years of age and over, were licensed to drive;
- in 1990, household expenditures on cars for both urban and intercity purposes amounted to 84 percent of total personal expenditures on transportation, and about 11 percent of overall personal expenditures;
- in 1990, 91 percent of all domestic intercity round trips were by car;[2] and
- in 1990, around 80 percent of all domestic intercity kilometres travelled were by car.[3]

Chart 10-1 shows that both the number of cars and the use of these cars — as measured by estimates of average kilometres driven — increased between 1980 and 1988. (The data on which the chart is based are restricted to personal-use cars — not including personal-use vans and light trucks. The trends shown, however, are believed to be representative for "cars" as the term is used in this report.) Some transportation observers believe that public transit and electric vehicles will become increasingly attractive means of travel within cities. While this development could reduce the popularity of the car and its importance in intercity travel, current evidence indicates that the dominant position of car travel is increasing, rather than diminishing.

Chart 10-1
AVERAGE DISTANCE DRIVEN, BY PERSONAL-USE PASSENGER CARS, 1980–1988



Sources: 1980–Third Quarter 1983: Statistics Canada, *Fuel Consumption Survey*, Catalogue No. 53-226, December 1987; Fourth Quarter 1983: Statistics Canada, *Passenger Car Fuel Consumption Survey*, October 1984; 1984–1988: Statistics Canada, *Fuel Consumption Survey*, Catalogue No. 53-226, February 1990, summary tables in Parts 1–5.

Note: This chart shows data for personal-use cars, rather than for cars, vans and light trucks in all private uses. In general, the text refers to data on the latter basis.

Under our principles, each traveller should pay the full cost of his or her travel, and travellers, in total, should pay the full cost of the passenger transportation system, including those costs related to safety, accidents and protecting the environment.

Therefore, car users should pay for the costs they impose on roads, the health system and the environment. The proposed system of charges will require:

- adjusting licence fees and fuel charges so that road users pay for all road costs;

- introducing charges that pass on to car users the costs that the health care system and provincial/territorial systems of vehicle safety regulation and enforcement incur on their behalf; and
- increasing emission controls and charges in order to reduce vehicle pollution and to pass on to car users the costs of any remaining environmental damage they cause.

When car users pay the full costs of their travel, they will be more sensitive to the way their travel affects health care and the environment. Since cars form a major part of the passenger transportation system, changes in car travel and purchasing behaviour, based on an appreciation of the true costs of car use, will contribute substantially to the efficiency of the passenger transportation system.

TRAVEL BY PRIVATE AIRPLANE

It is estimated there are 10,000 registered and active private aircraft in Canada. They fly an average of 80 hours a year. Apart from being limited to a small number of landing slots at the busy Vancouver and Toronto airports, private aircraft do use the public services designed for the aviation industry.

There are some 32,000 holders of private pilot licences in Canada. These licences are renewable without fee every one or two years, depending on the age of the pilot, and subject to medical examination.

Private aircraft, by virtue of provisions in the federal fee schedules, pay only a small portion of the costs of aviation services. With the exception of Vancouver and Toronto international airports, piston aircraft — and 98 percent of private aircraft are piston driven — pay no landing fees; instead, at federal airports they pay a per-litre fuel concession fee. The annual revenue from this 5¢-per-litre charge is about $2 million and is the only air infrastructure charge levied on private aircraft. This charge can easily be avoided by confining fuel purchasing to non-federal airports.

Private aircraft pay no terminal building fees because this fee schedule exempts aircraft with fewer than 10 seats. Private aircraft also do not pay the Air Transportation Tax, because the tax is applied to the selling price of a passenger's airline ticket. The Air Transportation Tax is used in substantial part to cover the costs of the local/tower aircraft control and enroute air navigation systems. About 95 percent of private aircraft use towered airports and more than 90 percent of private aircraft use different enroute navigation services from those used by the commercial airlines.

The level and structure of charges to private aircraft clearly require revision. Private aircraft operators, like all other users of the transportation system, should pay for what they get.

The changes in the charging systems for use of airports and of air navigation and traffic control systems, which we recommended in Chapter 5, will increase charges to private aircraft operators if they continue to use the air navigation and traffic control services currently provided.

Public Carriers

In Chapters 5 to 9, we examined public and private carriers' use of transportation infrastructure, the responsiveness of their services to the needs of people with disabilities, and the environmental and accident costs of their transportation activities. In Chapters 11 to 14, we apply our principles to the operations of public carriers (airplane, train, bus and ferry) and examine major policy issues that arise regarding direct subsidies to carriers, economic deregulation and government ownership. The remainder of this chapter provides an overview of the issues to be discussed in Chapters 11 to 14. These chapters concentrate on issues of particular importance to the mode in question. We reiterate, however, that the principles for carriers (stated in Chapter 4) apply to all modes.

In this report, we are examining the conditions necessary to achieve a transportation system that is fair and efficient and meets appropriate standards of safety and environmental protection. The first condition is that all travellers, whether using public or private carriers, pay the true costs of their activities. The second is that public carriers face market pressures to respond to consumer preferences and to reduce costs, improve efficiency, and pass the resulting savings on to travellers.

Our aim of creating a truly competitive environment for intercity passenger transportation is consistent with the principle of the *National Transportation Act, 1987*, that "all carriers [be] able to compete both within and among the various modes of transportation."

In Chapter 4, we emphasized the importance of a competitive environment for public carriers and the need to:

- allow anyone who is "fit, willing and able" an opportunity to supply passenger carrier services;
- provide all carriers who are willing to pay their share of the costs with equal access to infrastructure; and
- permit carriers to withdraw their services, without undue delay, subject to adequate notice.

"FIT, WILLING AND ABLE"

When we recommend that operators be "fit, willing and able" before entry to Canada's public passenger transportation industry, for the most part, we are not specific as to the appropriate screening criteria. In general we have in mind any operator who complies with safety regulations and has proof of adequate insurance coverage.

In the Canadian air passenger industry, except in the North, market entry regulation is restricted to fit, willing and able criteria. Under the *National Transportation Act, 1987*, in domestic service, an applicant must:

- meet Canadian ownership and control requirements;
- hold a Canadian aviation document in respect of the service to be provided — issued after the technical qualifications of the key personnel are established; and
- have prescribed liability insurance coverage or evidence of such insurability.

Here, we note the implications of the Commission of Inquiry into the Air Ontario Crash at Dryden, Ontario — that both fitness and ability should be monitored on an ongoing basis, and not be simply requirements that must be (temporarily) satisfied when the licence is first obtained.

Under the *Railway Act*, incorporation of a company that wishes to construct or operate a railway in federal jurisdiction using new track must prove "public convenience and necessity," including:

- economic feasibility;
- financial responsibility; and
- public interest.

If the company proposes to operate over existing tracks, it is subject to "fit, willing and able" criteria that are also applied by the National Transportation Agency.

Under the *NTA, 1987*, however, a candidate passenger rail operator does not enjoy the rights of track access that apply to freight railways. We addressed this constraint on entry in Chapter 6. Of course, the presence of a heavily subsidized Crown carrier in Canada's passenger rail sector restricts the practicality of entry by others.

Entry into Canada's intercity scheduled bus industry, which is tightly regulated under public convenience and necessity criteria, is much more restrictive than the "fit, willing and able" approach would be.

Passenger ferries in Canada are not subject to restrictive economic regulation. As for all operations in Canadian waters, safety regulation under the Canadian Coast Guard includes vessel design and maintenance, and the certification of ship's officers (vessels of more than 5 gross tons require a certified master). Use of harbours and ports is subject to approval of the local authority. Imported vessels are subject to import duties (which are sometimes waived). Crown carriers dominate both the west and east coasts, and some provincially funded ferry services are provided without charge. Under such circumstances, freedom of entry does little to enhance competition.

A competitive environment is not possible where there are barriers to market entry and exit, or where government subsidies give an advantage to particular carriers or modes. For example, the carrier costs of passenger rail and ferry operators are heavily subsidized. The result is that market prices do not accurately reflect costs. In addition, such subsidies cushion passenger rail and ferry operators from the market pressures to achieve cost efficiency.

AIR CARRIERS

For more than a decade, federal policies have been aimed at expanding the role of market forces in the airline industry. The *National Transportation Act, 1987* clearly states that market forces, rather than economic regulation, should govern the supply of air services. The NTA, 1987, however, did not remove restrictions on the foreign ownership of Canadian carriers, or on the activities of foreign-owned carriers in Canada. In addition, Air Canada and Canadian Airlines International are experiencing financial difficulties, and there are many changes taking place in the international airline industry.

In Chapter 11, we examine current government policies with respect to air travel and whether these policies protect travellers, given the major restructuring of this industry.

RAIL CARRIERS

While there is little competition among passenger rail carriers in Canada, passenger rail does compete with other modes, particularly the bus and private car. The large contribution made by taxpayers to rail travel, however, distorts the passenger rail market. As we observed in Chapter 3 (Table 3-1), rail travellers pay, on average, only one quarter of the capital and operating costs of passenger rail service. This situation raises a number of questions, which we discuss in Chapter 12:

- Are there special considerations that apply to passenger rail service that may justify some departure from the objectives and principles we set out in Chapter 4?
- If it is desirable to eliminate the taxpayer contribution to passenger rail travel, what type of transition mechanisms are needed to give carriers and travellers a reasonable amount of time to adjust to non-subsidized operations?
- Is public ownership of passenger rail carriers desirable?
- If public ownership of passenger rail continues, what mechanisms are required to ensure that those responsible for operations are accountable for their performance?

INTERCITY BUS CARRIERS

Intercity bus carriers in Canada are subject to provincial/territorial regulations covering pricing and entry to the market. The *National Transportation Act, 1987* did not apply to the bus industry, although it did initiate a process of regulatory reform in trucking — another industry subject to provincial/territorial economic regulation. While a few provinces, notably Alberta, New Brunswick and Prince Edward Island, have somewhat relaxed their regulations, most bus carriers operate in a more regulated market than most other transportation businesses in the economy.

We believe that it is time to critically examine the basis for the economic regulations on the intercity busing industry. In Chapter 13, we examine whether there are any special factors that distinguish this industry and that justify continued economic regulation, and, if not, what policy reforms are required.

FERRIES

In ferries, as in passenger rail, travellers benefit from major direct taxpayer contributions to their travel on average, although — unlike passenger rail — some major ferry services come close to covering their costs. Ferry travellers cover, on average, about 60 percent of total costs, which is much higher than the 25 percent covered by rail travellers. If supply of, and demand for, ferry service solely influenced the price charged, fares would tend to be substantially higher and traffic somewhat lower.

As with other modes, we believe it is necessary to consider whether, and to what extent, taxpayers should bear some of the costs of travel by ferry passengers. It is also necessary to examine governments' relationship to the federal Crown corporation, Marine Atlantic (the main ferry operator on the east coast), and the provincial Crown corporation, BC Ferries (the main ferry operator on the west coast).

ENDNOTES

1. See Notes to Chapter 2, Volume 2 of this report for discussion of estimate of size of private vehicle fleet.

2. This figure is based on Canadian Travel Survey data (Statistics Canada, Catalogue No. 87-504).

3. This figure is based on Royal Commission analysis (see Notes to Chapter 1 and Notes to Chapter 2, Volume 2 of this report). As noted in Chapters 1 and 2 of this report, there is a range of possible definitions of intercity travel.

CHAPTER 11

APPLYING THE PRINCIPLES TO AIR CARRIERS

Introduction

In the airline industry, recent reforms have been very much in the spirit of our principles. The *National Transportation Act, 1987* largely completed the process of economic regulatory reform that began in the late 1970s for air carriers. The privatization of Air Canada during 1988 and 1989 further helped to level the playing field. As a private-sector enterprise, Air Canada now competes in the market in a similar way to other firms, neither benefiting from special preferences nor burdened by special constraints on routes or equipment.[1]

Canadian experience with the new air-carrier regulations is still limited. Some benefits are obvious, such as more flights. Poor financial performance of carriers in recent years, however, has raised concerns about the viability of the Canadian air carrier industry in the future.

What Canadians Told Us

We heard opposing views on the impact of regulatory reforms in the airline industry. Some shared the position put forward in submissions by the major carriers that these reforms have been highly beneficial to Canadian travellers. For example, Canadian Airlines International Ltd. stated that "deregulation of the airline industry has resulted in greater efficiency, better service, lower prices, and balanced competition." The International Association of Machinists and Aerospace Workers, on the other hand, represented a different view: "Contrary to the promises of its proponents, transport deregulation in the United States increased concentration and lessened competition in all sectors. Our experience in Canada has closely followed the American example."

There were different responses to the issue of airline concentration. For example, proponents of the new reforms said that the industry, "after undergoing major structural changes brought on by deregulation, has finally found its equilibrium with two highly competitive national carriers which are both supported by equally competitive affiliated regional carriers" (Bernard Juteau, Air Alliance). It was emphasized to us, however, that "the survival of Canada's major carriers cannot be taken for granted" (Claude I. Taylor, Air Canada). At the same time, the Commercial Travellers' Association of Canada argued that the National Transportation Agency should promote "competition amongst airlines." Some interveners pointed to remote communities where traffic is insufficient to sustain service by more than one carrier.

The proposed open skies policy between the United States and Canada was another source of controversy. Under the current bilateral air agreement between Canada and the United States, scheduled air carriers can fly travellers only between their home country and designated destinations in the other country. They are not allowed the rights of cabotage; that is, to take on passengers within the foreign country and transport them to another destination in that country.

Some groups viewed open skies as an opportunity for improved air service between and within the two countries. Others were concerned that it would threaten the existence of Canada's major carriers. Some short-haul carriers are uncertain if they will be able to survive in an open skies environment. In addition, some warned that open skies could increase congestion and create more delays at airports.

Government Policies of the Past

Historically, Canadian air carriers did not operate under the same rules. The primary instrument of federal airline policy was the government-owned airline, Air Canada.[2] Protected against competition from private carriers, it was for many years the only Canadian transcontinental air carrier. It used the profits it earned on transcontinental and

international routes to subsidize service to some smaller and more remote communities, and to comply with assorted government directives.

Canadian Pacific Airlines (CP Air) was allowed entry into the international market in 1948 and was awarded a transcontinental route in 1959 (one return flight per day), but these concessions did not allow the private carrier to become a serious competitive threat to Air Canada. Although the constraints limiting CP Air's activities on transcontinental routes were gradually relaxed after 1967, the government believed that there was a need to protect Air Canada from "undue competition."

The 1966 Regional Air Carrier Policy represented a further government effort to control the structure of the industry and to limit the degree of competition among carriers. It established one airline as the preferred carrier to provide local and regional service in each of the five regions of the country. To ensure that the regional carriers provided scheduled services that supplemented, but did not compete with, the services provided by the two national carriers, the federal air regulator was given authority to screen regional carrier purchases of aircraft. The strict regulatory policy was reasonably successful in establishing price equality between the high-cost and low-cost routes.[3]

In the late 1960s and 1970s, however, the government found it increasingly difficult to balance the demands from CP Air and the regional air carriers for less regulation with the desire to preserve Air Canada's historic role as an instrument of government policy.

This pressure coincided with public concerns about the accountability of federal Crown corporations. Of particular concern was the difficulty of monitoring the performance of Crown corporations such as Air Canada, which benefited from special concessions and were at the same time asked to meet vague objectives. The 1978 *Air Canada Act* attempted to eliminate this problem. Air Canada was now to "have due regard to sound business principles, and in particular the contemplation of profit." The following year, all constraints limiting CP Air's activities as a transcontinental carrier were removed.

The United States deregulated its airline industry in 1978, resulting in lower costs and increased service. Research in the United States, prior to 1978, had pointed to the high costs resulting from controls administered by the Civil Aeronautics Board (CAB). The studies showed that resources were being wasted because regulated prices gave carriers misleading signals about the type and quality of service to provide, and that airline costs and fares were substantially higher than they would be in an unregulated environment. In a fully competitive environment, high labour costs could not be passed on to consumers as easily as they could in a regulated market. Furthermore, an unregulated environment would give airline managers the freedom to structure their operations in the most efficient manner.

The results of deregulation in the United States generally confirmed these expectations. After the relaxation of price controls and the opening of entry, air service expanded considerably and average fares, adjusted for inflation, declined substantially under the pressure of intense carrier competition. Since the mid-1980s, a number of airline failures, acquisitions and mergers has resulted in a major restructuring of the industry. Notwithstanding the high degree of industry concentration, most airline markets are subject to competition. Recent studies found that consumers, overall, benefited substantially from deregulation — which has brought increased airline efficiency, air fares that better reflect airline costs, airline service to more locations, and more flights.[4]

After deregulation in the United States, pressures mounted to end economic regulation in Canada. The experience in the United States with deregulation highlighted the gains that a more competitive airline industry brought to consumers. In addition, deregulated U.S. carriers appeared to attract a significant share of Canadian business in some markets.[5]

Price competition in the Canadian market intensified in 1980 under the more liberal charter regulations introduced by the Canadian Transport Commission. In 1984, a new Canadian Air Policy eliminated the

remnants of the Regional Air Carrier Policy, substantially eased the conditions of entry into airline markets in southern Canada, and gave carriers more freedom to set fares.

Current Government Policies

The *National Transportation Act, 1987* (NTA, 1987), which came into effect on January 1, 1988, states that "economic regulation of carriers and modes . . . will not unfairly limit the ability of any carrier or mode of transportation to compete freely with any other carrier or mode of transportation." The Act distinguishes between airline activity in southern and northern Canada.

Economic regulation of airline activity in southern Canada has been almost completely dismantled. To enter the market, a prospective carrier must simply establish that it can meet basic safety, insurance and Canadian-ownership requirements. Carriers do not require permission to exit from a market, although they must notify the National Transportation Agency 120 days in advance of their intention to reduce (to less than one flight per week) or eliminate a service that had been offered once a week or more for six months. Fares must be published, but they are not subject to regulation. There is, however, a provision that allows the public to appeal to the Agency about basic fare increases on monopoly routes. The Agency may disallow all or part of the increase if "there is no other alternative, effective, adequate and competitive transportation service," and if the increase is found to be "unreasonable." This provision, in respect to southern markets, has had, as yet, little use and no complaints have reached the formal investigation stage.

Airline activity in and to northern Canada is still subject to some economic regulation. Those objecting to the entry of a new carrier can challenge that entry, but the onus is on the opponents to demonstrate that entry would jeopardize the quality of existing services. Exit from a northern market is subject to the same advance-notice provisions as exist in southern Canada. Fares are also not regulated, but the

provision for appeal is somewhat broader. Objectors may ask the Agency to investigate either an unreasonable basic fare increase or an unreasonable basic fare level. There have been a number of investigations of northern rates, but in none of these cases, since 1988, did the Agency find that the levels or increases were unreasonable.

Foreign ownership of Canadian air carriers is limited by law. The NTA, 1987 requires that at least 75 percent of the voting shares of Canadian air carriers be owned by Canadian residents, and that control of these airlines is held by Canadians.[6] In addition, ownership restrictions are incorporated in the legislation that provided for the privatization of both Air Canada and Pacific Western Airlines (PWA), the parent of CP Air, now Canadian Airlines International Ltd. The federal *Air Canada Public Participation Act* limits the holdings of any one person or group to 10 percent of voting shares, and the holdings and control of non-residents in aggregate to 25 percent of voting shares. The Alberta government's *Pacific Western Airlines Act* restricts the holdings of any one person or group to 10 percent of the voting shares, and since the *National Transportation Act, 1987* also applies to PWA, its foreign ownership and control are also restricted.[7]

Changes under Economic Deregulation

In the early 1980s, the main providers of air passenger service were:

- two transcontinental carriers — Air Canada and CP Air;
- four regional carriers — PWA, Nordair, Eastern Provincial Airways and Quebecair — that also provided scheduled jet service; and
- one charter carrier — Wardair.

In 1982, government-owned Air Canada earned two and a half times more revenue than CP Air and carried three times the number of passengers.

During the second half of the 1980s, there was a dramatic restructuring of the industry. PWA acquired CP Air in 1987 and gained control of those regional carriers that had already been absorbed into the CP Air system — Eastern Provincial Airways and Nordair. Canadian Airlines International Ltd., the new consolidated operation owned by PWA, acquired Wardair in 1989. Wardair, formerly a charter carrier, ran into financial difficulties shortly after its 1986 entry into the domestic market for scheduled service. Also in the 1980s, Air Canada acquired interests in a number of regional airlines — Air Ontario, Air BC, and NWT Air.

While these reorganizations were under way, the federal government was evaluating its own position as owner of Air Canada. By the early 1980s, the carefully designed system of cross subsidization was eroding, and it was difficult to distinguish Air Canada from private carriers. Air Canada was privatized by two share offerings — in September 1988 and July 1989.

Today, the airline industry is dominated by two large private-sector corporations, Air Canada and Canadian Airlines International (the "majors"). Both corporations have established feeder affiliates and integrated them into their operations. Integration has involved the coordination of flight timetables and the incorporation of the feeders into the baggage, reservation and frequent-flyer systems of the majors. Table 11-1 provides a snapshot of the two "airline families" as of the end of 1991.

The majors have similar shares of domestic traffic, although Air Canada continues to predominate in international markets. Independents and smaller commuter airlines not connected to the majors also provide scheduled service. In 1991, there were 288 level 1 to 4 air carriers (having annual gross revenues of $250,000 or more). Along with the majors and their affiliates, and independent scheduled carriers, level 1 to 4 carriers include charter carriers (for example, Nationair, Canada 3000 and Air Transat) that are an important source of competition on many major routes. Independent airlines enjoyed a period

of growth in the 1980s, but a number of the more important independents (Intair, City Express) have failed. The majors' affiliates, however, have enjoyed strong growth as the majors have streamlined their operations and withdrawn from markets they could not profitably service with their large aircraft.

Table 11-1
Structure of the Airline "Families," 1991

Airline[a]	Points served	Percentage ownership by parent/ subsidiary	Fleet
Air Canada[b]	**48**	**Parent**	**115 jets**
Air Nova	16	100	5 jets; 9 non-jets
Air Alliance	14	75	15 non-jets
Air Ontario	10	75	21 non-jets
Air BC	26	85	5 jets; 33 non-jets
Pacific Coastal Airlines	9	50	18 non-jets
NWT Air[c]	5	100	2 jets; 1 non-jet
PWA Corporation[d]	**—**	**Parent**	**—**
Canadian Airlines International[e]	42	100	76 jets
Canadian Regional Airlines[f]	—	100	—
Inter-Canadien	26	70	12 non-jets
Ontario Express	25	100	26 non-jets
Calm Air	22	45	8 non-jets
Time Air	29	100	7 jets; 29 non-jets
Air Atlantic[g]	19	45	3 jets; 13 non-jets

Source: National Transportation Agency, *Anual Review 1991*, pp. 22-23.

a. Parent companies appear in white type. Firms indented once are owned by the parent. Firms indented twice are owned by the preceding firm in italics.
b. In April 1991, Air Canada established Air Canada Regional Airline Holdings to manage its regional carrier interests.
c. NWT Air has code-sharing agreements with five affiliated carriers (which serve 21 points).
d. PWA Corporation is a holding company and thus does not operate its own services.
e. Canadian Airlines International includes the division Canadian North, which serves 23 additional destinations in the Northwest Territories, Quebec, Manitoba, and Alberta using 8 jets.
f. Canadian Regional Airlines is a management company and therefore does not operate its own services.
g. Air Atlantic is 45 percent owned by PWA Corp., but is managed by Canadian Regional Airlines.

Under deregulation, the hub-and-spoke system replaced some direct flights. Passengers from various cities increasingly travel by spoke routes into a centralized airport — the hub — from which they take connecting flights to their destination. Hubbing consolidates traffic at a central location, allowing airlines to put more passengers on each flight. Pooling of passengers also allows airlines to provide more flights to more locations than would be possible under the alternative point-to-point system.

To take advantage of the economies of hubbing, airlines require sophisticated scheduling and passenger handling systems that enable them to move a number of aircraft through a connecting point at about the same time. A successful hubbing system also requires a large network, so that incoming flights can provide the passengers needed to achieve large passenger loads on departing flights.

The economies to be realized from a hub-and-spoke system are fewer in Canada, where the population is concentrated along the Canada–United States border, than in the United States, where the population is more dispersed. Nonetheless, the realignment of flight patterns and the integration of operations in each carrier family have supported the development of some hub-and-spoke systems in Canada.

Changes in traffic patterns have had a major impact on Canadian airports. Lester B. Pearson International Airport in Toronto, which has become Canada's major hub, experienced a 58 percent (7.9 percent average annual growth rate) increase in commercial aircraft movements between 1984 and 1990.

Similarly, Vancouver and Halifax, which emerged as important regional hubs, have also experienced greater air traffic. Hubbing results in increased demands on both air and ground facilities of an airport. At Pearson, the completion of Terminal 3 has helped the airport cope with the increase in ground traffic but, to alleviate the pressure from the growth in air traffic, air movements have been capped. The cap

is 82 air movements per hour as of July 1992, up from 76. There are plans to increase the number of air traffic controllers and to expand runway capacity at Pearson, as well as at Vancouver.

Airline Performance under Economic Deregulation

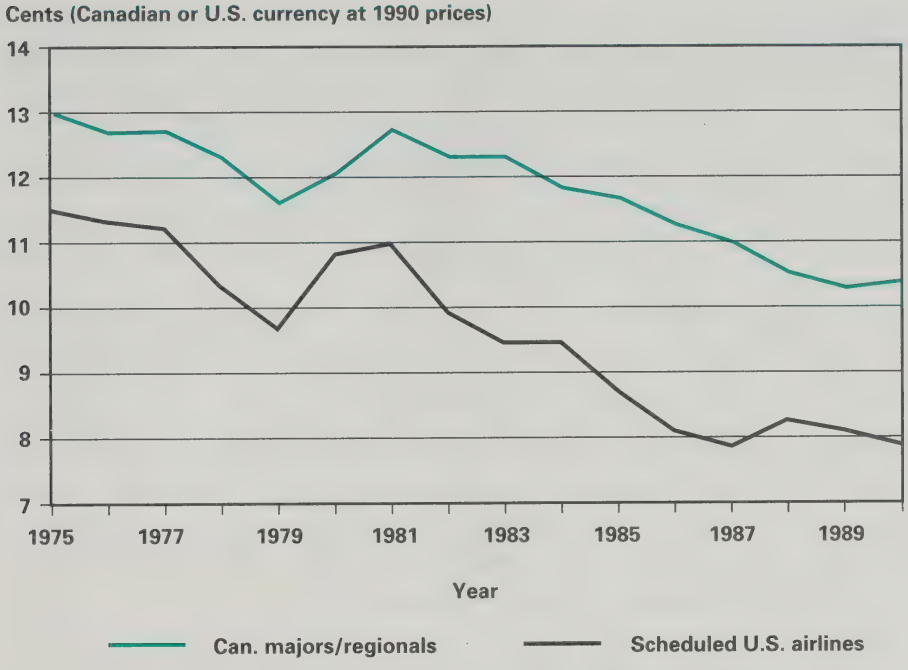
PRICES AND COSTS

Average air fares, adjusted for inflation, have fallen in Canada during the past decade, as shown by airline yield, which is calculated by dividing passenger revenue by passenger-kilometres. This decline (Chart 11-1) is the result of several factors: a restructuring in rates due to market pressures, which led to an elimination of the cross subsidy from long-haul to short-haul flights; an increase in long-haul flights; and an increase in the importance of discount fares (Chart 11-2).

Since regulatory reforms were introduced, air fares have come to more closely reflect airline costs. Travellers flying long distances pay less per kilometre than passengers on short-distance flights because some airline costs do not increase with distance. Costs per passenger-kilometre are also lower if an airline can spread its fixed costs over more passengers by using larger airplanes and achieving higher load factors. This benefits passengers flying on high-density routes as compared with those flying between small centres.

Discount fares are more important in some markets than in others. The proportion of travellers flying on discount fares is high in long-haul, trans-border and international markets, where competition is intense. Discount fares are also more important on flights with a high proportion of leisure (as distinct from business) travellers. Discounting is an important component of the major airlines' yield management systems.[8] Airlines have become adept at fine-tuning their use of discount fares (adjusting their number, the size of the discount and the restrictions applying to their use) so as to increase passenger loads and maximize flight revenue.

Chart 11-1
Revenue Yields per Passenger-Kilometre, Major Canadian and U.S. Airlines, 1975–1990



Sources: Canada: unit-toll passenger revenue data are from Statistics Canada, *Air Carrier Financial Statements/Canadian Civil Aviation*, Catalogue No. 51-206, 1975–1990 editions; passenger-kilometre data are from Statistics Canada, *Air Carrier Operations in Canada*, Catalogue No. 51-002, October-December issues, 1975–1981 and Catalogue No. 51-206, 1982–1990. Data on the Consumer Price Index for all items are from Statistics Canada, CANSIM, matrix 1922.

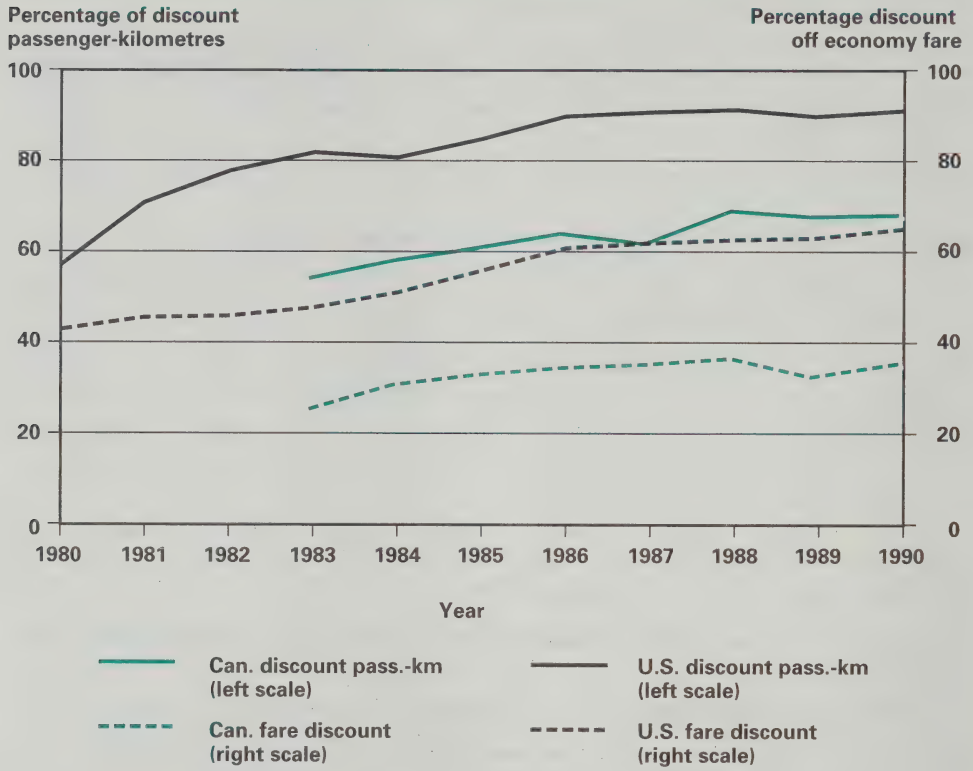
United States: all data are from Air Transport Association of America, *Air Transport: The Annual Report of the Scheduled Airline Industry* (Washington: ATA of America), 1986 and 1991 issues. The U.S. consumer price index is taken from *Economic Report of the President* (Washington: U.S. Government Printing Office, 1991), Table B-60.

Notes: Canadian data refer to unit-toll services of Level 1 and Level 2 carriers for 1975–1981 and of Level 1 carriers for 1982–1990. Unit-toll passenger revenues were unavailable for 1982–1986 but yield data were provided in Table 1 of the 1987 edition of *Canadian Civil Aviation*.

Nominal yields are deflated by the Consumer Price Index for all items, which has been re-based to 1990 = 100.

Chart 11-2

The Extent of Domestic Discount Air Fares in Canada and the United States, 1980–1990



Sources: Canada: The percentage of discount passenger-kilometres for 1983–1989 is from L. Di Piétro and G. Baldwin, "Discount Air Fares in Canada: Price Competition and Price Differentiation," in *Proceedings of the 26th Annual Meeting of the Canadian Transportation Research Forum*, May 28 to 31, 1991, p. 517; 1990 data are from Statistics Canada, *Canadian Civil Aviation 1990*, Catalogue No. 51-206, November 1991, Table 6.3, p. 31. The percentage discount off the economy fare is taken from Table 2 of the first source mentioned and from unpublished data from Statistics Canada's Fare Basis Survey.

United States: Air Transportation Association of America, *Air Transport: The Annual Report of the Scheduled Airline Industry* (Washington: ATA of America), various issues.

In the United States, the decline in air fares after 1978 was made possible, in part, by the ability of the airlines to exercise greater control over their labour costs. This involved tough negotiations both to reduce wage and salary expectations of airline employees, and to

eliminate those work practices that were lowering productivity. The impact of deregulation on labour markets has been less pronounced in Canada.

Increases in productivity, however, have helped to restrain labour costs. The productivity of airline workers has increased at an impressive rate during the past decade (Chart 11-3). While part of this increase must be attributed to technological improvements, also important was the lifting of economic restrictions on the activities of Canadian carriers.[9]

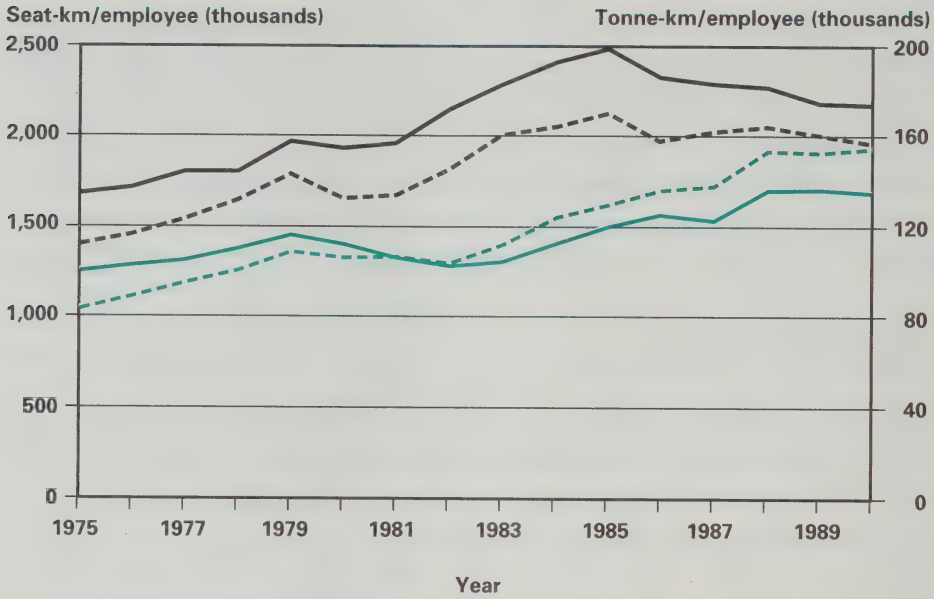
QUALITY OF SERVICE

Under deregulation, carriers have the flexibility to customize services. They can provide a no-frills service for passengers who want low fares, while offering a premium service for passengers who value booking freedom and in-flight amenities.

As a result of the organizational and routing changes that have occurred under deregulation, some short-haul regional routes once served by jet aircraft are now being served by turboprop aircraft operated by an affiliate of one of the major airlines. In addition, some passengers who had been able to fly directly to their destination under the point-to-point routing system must now make connections through a hub airport. While connecting and indirect (same plane, one or more stops) services have increased, there has also been a net increase in the number of direct (non-stop) services.

Travellers now benefit from a greater choice of flights. Air services have expanded as more and more communities have become tied to one or more hub-and-spoke networks. The number of Canadian cities and towns with scheduled air service rose by approximately 60 percent between 1983 and 1990. Flight frequency also increased substantially during this period. In Canada's top 25 city-pairs, there were 51 percent more flights in 1991 than in 1983, while available seats increased by 20 percent. Researchers in the United States have

Chart 11-3
Productivity Indicators, Major Canadian and U.S. Scheduled Airlines, 1975–1990



Sources: Canada: Available seat-kilometres for 1975–1980 are from Statistics Canada, *Transcontinental and Regional Air Carrier Operations*, Catalogue No. 51-001, December issues; for 1981–1986, data are from Statistics Canada, *Air Carrier Operations in Canada*, Catalogue No. 51-002, October-December issues, Table 4; for 1987–1990, data are from Statistics Canada, *Canadian Civil Aviation*, Catalogue No. 51-206, 1988–1990 issues, Table 2.3.

Total tonne-kilometres for 1975–1981 are obtained from Statistics Canada, *Air Carrier Operations in Canada*, Catalogue No. 51-002, October-December issues; data for 1982–1990 are from Statistics Canada, *Canadian Civil Aviation*, Catalogue No. 51-206, 1982–1990 issues.

Employee statistics for 1975–1987 are from Catalogue No. 51-002; for 1988–1990, Catalogue No. 51-206, Table 4.2.

United States: Air Transport Association of America, *Air Transport: The Annual Report of the Scheduled Airline Industry* (Washington: ATA of America), various issues.

Notes: Canadian data refer to unit-toll services of Level 1 and Level 2 carriers for 1975–1981 and of Level 1 carriers for 1982–1990.

Seat-kilometres for regular, irregular and specific point service were estimated for 1975–1986 by applying the average load factor on scheduled services of the regional airlines. Nordair's seat-kilometres were unavailable for 1983 and 1984 and were estimated using the above method.

Tonne-kilometre statistics include both passenger and freight weights.

found that because travellers, especially business travellers, place a high value on finding flights that correspond to desired departure times, the increase in numbers of flights is one of the most important benefits of deregulation. Surveys conducted by the National Transportation Agency confirm the importance of convenient departure and arrival times to Canadian business travellers.

Air service to northern and remote communities has also increased. Regional affiliates established their own local connections to serve these markets. The result is more frequent service and links that allow travellers in these communities to connect with the country's main airline networks. The number of weekly scheduled direct flights increased by 163 percent on 60 northern air routes monitored by the National Transportation Agency between 1983 and 1991, and the number of scheduled indirect flights (same plane, one or more stops) increased by 61 percent.

There is no evidence that deregulation has lowered airline safety. Economic deregulation did not extend to safety regulation. In Canada, as in the United States, the federal government continues to set and enforce standards for safe airline operation. Opponents of deregulation believed that airlines would cut back on safety precautions because of the pressure to reduce costs and become more competitive. As we discuss more fully in Chapter 8, it is difficult to separate the effects of economic deregulation from all the other influences on air safety. Nevertheless, there is no evidence in the overall statistics on air accidents, in either Canada or the United States, that deregulation has lowered safety levels.

Market Structure and Competition

In both Canada and the United States, the airline industries have become highly concentrated. In the United States, low-cost, innovative airlines that provided an important competitive stimulus in the early years of deregulation have disappeared. Today, three airlines — Delta, American and United — control more than half the market. In

Canada, the airline industry is controlled by two airlines. Air Canada and Canadian Airlines International and their networks account for approximately 95 percent of the revenue for scheduled services and 90 percent of total industry revenue. Are competitive forces in the market sufficient to impose pressure on carriers to increase efficiency and to pass on the resulting gains to consumers?

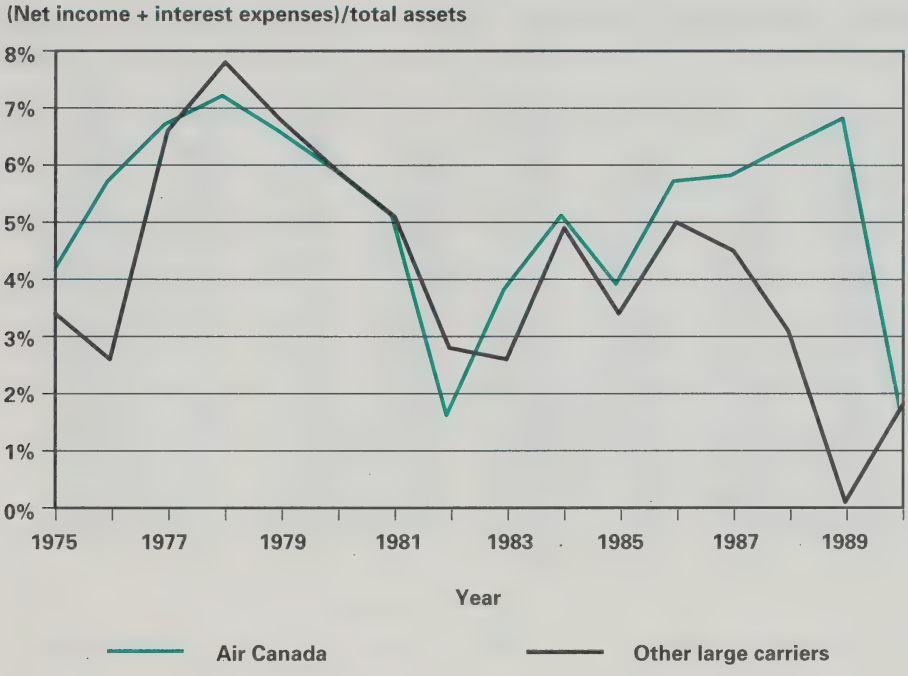
Studies of city-pair markets suggest that there has been an increase in competition. The development of the Canadian Airlines International network overcame the market imbalance that previously existed because of the dominance of Air Canada. In 1983, one carrier alone served about 20 percent of the largest communities in the country. By 1991, the two major carriers served all 43 of the largest communities that account for over 95 percent of originating and terminating traffic. Independent carriers provided scheduled service in 30 of these communities.

Consolidation in the Canadian air carrier industry, however, may not yet be over. Several charter and independent airlines have left the industry or become part of the majors' families. For example, Wardair was taken over by Pacific Western Airlines (PWA) in 1989. Intair, the largest independent, filed for bankruptcy, and its turboprop operations in Quebec were acquired by PWA in 1991.

The recent financial performance of Air Canada and Canadian Airlines International has been unimpressive (Chart 11-4). Their lower revenues are a result of several factors, including the recent economic slowdown in Canada and other countries, and the heavy debt load and high interest expenses from the purchase of $6 billion worth of aircraft since 1986. In addition, with the privatization of Air Canada and with PWA's acquisition of Wardair, both majors have had to undertake considerable re-organization.

Markets with at least two competing carriers enjoy lower fares. In the United States, it is difficult for new airlines to enter fortress hubs — those dominated by one carrier. For air travellers who cannot bypass

Chart 11-4
Rates of Return on Investments for Major Canadian Airlines, 1975–1990



Source: Statistics Canada, *Air Carrier Financial Statements/Canadian Civil Aviation*, Catalogue No. 51-206, 1975–1990 editions.

Note: Other large carriers include CP Air, the major regional carriers and Wardair for 1975–1986 and Canadian Airlines International Ltd./Wardair thereafter.

these hubs, fares have been higher than for other travellers. In Canada, fares are higher in city-pair markets served by only one carrier, although these markets account for a small percentage of total traffic. Chart 11-5 shows that the proportion of travellers obtaining discount fares is somewhat lower in city-pair markets served by only one carrier. Chart 11-6 shows that large discounts are more common in city-pair markets served by two carriers than those served by one carrier.

Experience under deregulation has shown that the majors and their affiliates have a number of advantages over potential new entrants. Their large and well-integrated networks allow them to satisfy most

Chart 11-5

PASSENGERS TRAVELLING ON DISCOUNT FARES, BY NUMBER OF CARRIERS SERVING CITY-PAIRS, 1983–1990



Source: Unpublished data from Statistics Canada's Fare Basis Survey.

Note: Only Air Canada and Canadian Airlines International Ltd. were included in the survey for 1990.

travellers' preferences for single-line service from origin to destination. Marketing innovations, particularly computer reservation systems (CRSs), but also frequent-flyer programs (FFPs) and various travel agent incentives, have also reinforced the strong position of the majors. Large carriers also have deeper pockets, and are therefore in a better position than a smaller rival to sustain the losses that sometimes result from a competitive battle. There is a debate as to whether large airlines have cost advantages over smaller airlines. It seems clear, however, that a high-volume route has lower costs than a low-volume one.

The extent of the majors' networks may make it difficult for a new airline to enter the market. Air Canada and Canadian Airlines International have been successful in bringing most feeder carriers

Chart 11-6

PERCENTAGE DISCOUNT OFF ECONOMY FARE, BY NUMBER OF CARRIERS SERVING CITY-PAIRS, 1990



Source: Unpublished data from Statistics Canada's Fare Basis Survey.

Note: Only Air Canada and Canadian Airlines International Ltd. were included in the survey for 1990.

into their networks. A potential carrier could have difficulty establishing itself if it could not gain access to feeder traffic. The relevant authorities must ensure that restrictive agreements between the majors and their feeders have not created a barrier preventing entry of a new carrier.

Reservations systems could also give the majors an advantage over new airlines. Air Canada and Canadian Airlines International jointly own the Gemini Computer Reservation System, which, in 1989, accounted for 82 percent of air segments (a segment being one takeoff and landing) booked in Canada. Participation in a CRS has become a necessity for airlines. Without some public monitoring,

Air Canada and Canadian Airlines International could use their control of the dominant CRS system in Canada to put their potential rivals at a disadvantage.

Canada's *Competition Act* has provided a basis for addressing both the potential anti-competitive effects of CRSs and the general problem of exclusive contracts and "refusal to supply."[10] The Canadian Competition Tribunal issued rules to govern the conduct of the Gemini CRS, and an interdepartmental government committee is developing permanent regulations to be administered and enforced by the National Transportation Agency. These safeguards are adequate and appropriate.

We are firmly convinced that Canadian air travellers are better off as a result of economic regulatory reforms. Problems certainly exist under deregulation, but these should be put into perspective. Airline markets may be imperfect today, but they were even more imperfect in the past, when they were controlled by rigid economic regulations. We believe that a number of measures are available to assist in achieving the benefits of competition or to respond should competition decrease. These measures involve different elements of international air policy, to which we now turn.

International Air Policy[11]

BILATERAL AIR AGREEMENTS

International air markets are regulated through international agreements. Foreign carriers in Canada and Canadian carriers in international markets are subject to restrictions in their operations. Countries with their own domestic airlines generally do not allow foreign carriers to operate within their borders. Bilateral air agreements between countries provide a system for regulating entry and for controlling pricing, capacity, frequency and other matters in international markets. Canada's international air policy is governed by such agreements.

An objective of bilateral agreements is the sharing of air markets between the carriers of the countries involved. Moreover, the existence of bilateral air service agreements means that Canada cannot move unilaterally to deregulate international air services to and from Canada.

The international air market is tightly regulated. Canada takes part in about 60 international bilateral air agreements. Some include limits to the capacity (seats) that each country's designated airline can offer, and require both airlines to agree to any change. Some have restrictions on fares; again, the airlines must agree to the changes. The agreement with France concerning Martinique and the now-expired, experimental, trans-border agreement with the United States were the only agreements where tariff changes could be made rapidly in response to market shifts.

In agreements under which routes are operated solely by foreign carriers, Canada requires revenue sharing or other benefits to the Canadian carrier. Finally, two thirds of the agreements limit the ability of either country to designate more than one carrier on a route.

Bilateral air agreements assume that each country has at least one national airline. If there were no international Canadian air carrier, Canada would be forced to depend on foreign carriers for international airline service. The result could be a monopoly in markets to and from Canada if other countries were to assign a single national carrier to the route. For example, the Canada–France bilateral agreement allows Canadian air carriers to operate between Canada and France in competition with Air France, but does not permit Canada to designate a non-Canadian carrier for that route. In the absence of a Canadian carrier, the Canada–France market would become an Air France monopoly. Canada would have the option, however, of withdrawing from the bilateral agreement, but then Canadians wishing to travel to France would have to make their way to France via a third country.

In the context of the existing system of bilateral agreements, we want to examine the potential for Canada's international air policy to give Canadians access to competitive air services in international and domestic air markets. To achieve this, Canada requires two or more actual or potentially competing carriers operating between destinations within Canada, and between Canadian and foreign destinations.

Recommendations

OWNERSHIP AND CONTROL

Although there are no national restrictions on ownership for the other transportation modes, air carriers are protected from foreign ownership and control under the *National Transportation Act, 1987*. This protection is consistent with the Chicago Convention, which sets the requirements of the world's bilateral air agreements. Under the Chicago Convention, there must be substantial national ownership and effective control of an airline designated as national. For an airline to be a national Canadian air carrier, substantial ownership and effective control must be held by Canadians — citizens, permanent residents, a government or government agent, and entities in which Canadians own and control at least 75 percent of the voting interests or "such lesser percentage as the Governor in Council may by regulation specify."[12]

If a Canadian air carrier that flies international routes were, by virtue of foreign investment, no longer owned and under effective control by Canadians, its designation as a national airline under the relevant bilateral agreements could be challenged. This challenge could come from the remaining Canadian air carriers, the other country party to the bilateral agreement, or from carriers in competition with the newly controlled airline. Under the existing international rules, this challenge would probably succeed.

Foreign control may also affect the ability of the government to ensure the availability of domestic service in emergency situations. The *Emergencies Act* provides the Canadian government with the power to requisition the use of any equipment, which includes aircraft on Canadian territory, in times of a declared emergency. Other governments have similar laws. A foreign government might act on prior knowledge, however, and order aircraft owned, or even operated, by its nationals, to be returned to its territory (in a manner similar to the control over shipping demonstrated in the days preceding World War II).

Restricting foreign ownership and control may reduce choices to the consumer. This would be of particular concern if a situation arises where only one domestic carrier remains viable. We recognize that there are instances when a relaxation in foreign ownership controls may be necessary to preserve domestic competition (we return to this later). For the most part, though, we believe existing restrictions on foreign ownership and control of Canadian air carriers are appropriate, given the current bilateral air agreement regime.

Therefore, we **recommend** that:

11.1 The federal government retain the existing limits on foreign ownership and control of air carriers.

Canada also restricts individual ownership of air carriers. These restrictions ensure that shares in the air carriers remain widely held and that control by current management is preserved. We believe that such restrictions are undesirable. The unrestricted trading of shares exerts an important check on corporate management. In equity markets that function well, excellent management is more likely because badly managed companies are more easily taken over.

Therefore, we **recommend** that:

11.2 The 10 percent ceiling on individual holdings, which currently applies to Air Canada and Pacific Western Airlines (the parent of Canadian Airlines International), be eliminated.

CONSOLIDATION OF THE INDUSTRY

Since we commenced our studies, dramatic changes have occurred in the airline industry. As we move through this decade and into the 21st century, the number of international carriers may well shrink, and changes will continue. These changes will have a profound effect on Canada's carriers and domestic airline services. As well, Canadian air carriers will face more formidable competition in their international operations.

The world's airlines are undergoing major restructuring. In part, this restructuring has taken the form of a shift toward partial or full private ownership of several airlines that were previously government-owned. In addition, a severe recession in North America has hastened the collapse of several U.S. carriers, resulting in the emergence of three super-carriers in that country. Through inter-carrier equity investment and the sharing of resources, management, labour, equipment and bases, several more super-carriers will likely emerge worldwide.

It is well to remember, however, that there are over 200 member airlines in the International Air Transport Association (IATA), and that many of these companies will continue providing essential services throughout the world. Will Canada's national carriers be included in this group? We believe that they will as long as their vision takes into account new pressures, challenges and opportunities.

It is possible that Canadian carriers will be able to operate successfully as independent carriers in the new mega-carrier world. On the other hand, they could become pivotal partners of one of seven or

eight world-scale airlines. The outcome for Canadian air carriers — between these two possibilities — will depend on the evolution of national, continental and world markets, as well as improvements in technology, but, above all else, on their ability to be competitive, to change, to improvise, to find a special role, and to provide superior service.

We are optimistic that Canadian air carriers will have the realistic and creative energies to meet this challenge as Canada enters the 21st century.

We have considered the arguments of those who believe that the Canadian market can sustain only one major carrier, and that a merger of Air Canada and Canadian Airlines International is desirable. In 1989, the airline resulting from such a merger would have ranked 11th out of the top 50 airlines in the world in both passengers and passenger-kilometres. The advantage of such a merger is that the resulting carrier would carry more passengers and could thereby incur lower operating costs per passenger. The disadvantage of a merger is that, despite the freedom of other carriers to enter the market, domestic air transportation could become dominated, once again, by a single carrier monopoly.

We believe that the federal government should not attempt to restructure the airline industry. Rather, government policy should permit Canadian air carriers to increase their efficiency and to develop whatever market niche they can most effectively fill in the evolving airline industry.

To this effect, we **recommend** that:

11.3 The federal government invite Canadian air carriers to make public proposals for future international air route designations, with the airline offering the best package to be granted the route and the reasons to be made public.

Further, we **recommend** that:

11.4 Canadian air carriers be allowed to sell designated international air routes to one another.

Given our view that carriers will make the required adjustments toward efficiency and market niches without interference or assistance, we **recommend** that:

11.5 Governments abstain from making any financial contribution that is intended to ensure the survival of air carriers.

This recommendation, of course, does not preclude purchase by governments of designated services on market terms. The federal government should be prepared, however, to prevent a situation that would require a return to economic regulation, which would be the likely outcome if only one major Canadian air carrier emerges. At the time of writing, discussions were under way regarding a potential merger between Air Canada and Canadian Airlines International. The presence of only one major airline in the domestic market is inadvisable. While we are concerned with the survival of the airline companies, our overriding policy consideration is to maintain competition between at least two air carriers. We believe that Canadian travellers will be best served if there are two or more major competing carriers in Canadian skies. Maintaining competition should be the overriding policy consideration.

Therefore, we **recommend** that:

11.6 If faced with a potential reduction to only one major Canadian air carrier, the federal government exercise its authority under sections 67, 72 and 73 of the *National Transportation Act, 1987* to override limitations on foreign ownership and control for the explicit purpose of, and to the extent required for, ensuring competition in the domestic market.

OPEN SKIES

The term "open skies" has been used to indicate a considerable opening of the United States–Canada border to flights to and from both countries. Increasing trade and visitor traffic have put pressure on both countries to renegotiate the United States–Canada bilateral air treaty.

There has been much discussion in the media over the past few years about the concept of open skies, in particular with the United States. One version of open skies would mean a continental free market for airlines. Carriers from each country would be allowed to fly any routes in either country. This would specifically include cabotage rights where airlines of both countries are permitted to transport travellers from one destination in the other country to another destination in that same country.

At our hearings, it was apparent that, other than representatives of airlines and a few others with closely related interests, members of the public generally were not talking about this version of open skies. What they did want, and strongly argued for, was direct service from their communities to additional destinations in the United States.

Canadians are interested in better access to foreign airline networks. They want more and better air service. This presents a real problem in negotiating a sound bilateral agreement with the United States that will meet the wishes of Canadian consumers and at the same time preserve the viability of Canada's two major carriers.

Equality of opportunity and equality of benefits for Canada's airlines are almost impossible to attain. To counteract the current dominance of U.S. carriers flying into major Canadian cities, Canadian carriers must be given the same access to all major U.S. cities, with guarantees of slots and gates. This might more accurately be termed an "open borders" policy, or "point-to-point" open skies. Under this arrangement, cross-border access would be eased considerably and Canadian consumers would get the additional service they have been demanding. U.S. airlines would benefit by adding new Canadian spokes to their hubs in the northern United States. Canadian air carriers could create Canadian hubs that would add spokes to the United States. Canadian firms would still retain all domestic flights and their international connections.

While we are in favour of open borders, we believe that Canadian carriers will require some time to prepare to meet the expected U.S. competition, which will likely concentrate on one or more of the three major centres, Vancouver, Toronto and Montreal. This period need not be prolonged. Canadian carriers must be prepared, as soon as possible, to meet this and other challenges developing worldwide. It is also well to remember that the Canada–United States Free Trade Agreement is being phased in over 10 years.

Canadians also want one or more Canadian airlines. We believe that the interests of the nation and of Canadian travellers will be best served if there are two or more major competing Canadian carriers. This should be a primary policy consideration in the renegotiation of the United States–Canada Bilateral Air Treaty.

If easing the restrictions on access to the Canadian air market and relaxing foreign ownership limits are not sufficient to maintain two major Canadian carriers, then the availability of competing services should continue to be the overriding consideration. In this event, Canada should seriously consider ways and means to ensure competition on domestic routes. This would entail one or more of the following:

- favouring alliances between Canadian and foreign carriers;
- favouring easier access for new entrants to terminals and landing slots; or
- relying on the Bureau of Competition Policy if there is abuse of monopoly power.

If all efforts to create domestic competition fail, we would recommend that the federal government consider opening up certain domestic routes to foreign airlines.

ENDNOTES

1. Both Air Canada and Pacific Western Airlines (PWA) are subject to restrictions — including ownership restrictions and head office location — under their respective Acts.

2. Air Canada was created in 1937 but was called Trans-Canada Airlines until 1965.

3. By contrast, regulations administered in the United States by the Civil Aeronautics Board (CAB) did not afford the trunk carriers the protection they required to carry out an effective program of internal subsidization. (Many of the major routes were served by more than one trunk carrier.) U.S. carriers could not engage in price competition since the CAB regulated the level and structure of fares. But they could compete by increasing flight frequency, improving the comfort of aircraft and offering in-flight amenities. This non-price competition, which occurred in long-haul markets, ultimately eliminated the surplus that was necessary to sustain service on unprofitable routes.

4. For example, a recent review of available research on U.S. deregulation concludes:

   "At the outset of deregulation only about 20 percent of city-pair markets had three or more competitors; this share has grown to 40 percent. City-pair markets with three or more competitors serve about two-thirds of passenger trips. To date, this competition has generated many benefits for consumers. The freedom given to managers by deregulation to realign their routes and costs has resulted in a more efficient industry. Average fares have increased more slowly than costs, although most bargains occur in markets in which three or more carriers compete for service, especially when one of those competitors is a low-cost, new-entrant airline. The development of hub-and-spoke networks, spurred by deregulation, has expanded the frequency and availability of service in most parts of the country. In addition, rural areas, which used to receive subsidized jet-carrier service, continue to receive air service, though now via smaller turboprop aircraft. Substantial improvements in the frequency and timeliness of service have occurred in most rural areas. Even while the industry has evolved and service has expanded, accident and fatal accident rates have been lower than during the period before deregulation."

   Transportation Research Board, National Research Council, *Winds of Change: Domestic Air Transport Since Deregulation* (Washington, D.C., 1991), Special Report 230, p. 2.

5. There is anecdotal evidence of Canadians driving several hours to take advantage of substantially lower U.S. airfares on international and transcontinental flights and other flights to U.S. destinations.

6. "Canadian" includes Canadian citizens, permanent residents within the meaning of the *Immigration Act*, a government or government agent, and entities that are 75 percent controlled by Canadians.

7. The *Pacific Western Airlines Act* was recently amended. The previous provision regarding holdings restricted the holdings of any one person or group to 4 percent of the voting shares.

8. The objective of yield-management systems is to maximize revenues by, in part, minimizing the number of empty seats on flights. Computer programs allow the airlines to predict the number of empty seats on each flight and to determine the nature of the discounts that are required to attract sufficient new passengers to achieve full capacity. The yield-management system will also help airlines determine the nature of the restrictions or discount fares (such as advanced booking, advanced purchase, minimum and maximum stay, no cancellation) required to reduce the diversion of potential full-fare passengers to

discount fares. The computer keeps a running check on actual bookings compared with expected bookings on each flight and flags those flights for which there is a need to attract additional passengers or make other adjustments.

9. Changes in revenue tonne-kilometres per employee reflect changes in load factor, and hence capture the results of the innovations in load management discussed above. They also incorporate the effect of efforts to increase seat-km per employee; using this latter measure, labour productivity increased by 3.4 percent annually between 1984 and 1990, compared with only 0.4 percent annually between 1975 and 1983.

10. The *Competition Act* provides for a remedial solution when competition is precluded because someone is withholding an essential input. In these circumstances, the Competition Tribunal can order that the required input be made available to the aspiring competitor on the usual trade terms.

11. Air transportation to, from and within Canada accounts for slightly more than 2 percent of all global air markets. The mix of domestic and international passenger traffic varies considerably from one country to another. The United States has a low proportion of international service, about 24 percent, while the United Kingdom's carriers depend on international traffic for 97 percent of their revenue.

    For Canada, the mix is more balanced. In 1990, Canadian carriers, scheduled and charter together, carried some 37 million passengers, of which approximately 65 percent travelled between domestic and international destinations. Travel to and from the United States (measured by number of one-way trips) was 50 percent of Canada's total international market.

    The report of a task force established by the Minister of Transport to review Canada's international aviation policy to prepare for emerging global trade and travel patterns, published in January 1992, provides more detailed information on the importance of the Canada–United States trans-border air market and overseas markets.

12. This is the definition of "Canadian" under section 67(1) of the *National Transportation Act, 1987*.

CHAPTER 12

APPLYING THE PRINCIPLES TO RAIL CARRIERS

INTRODUCTION

In this chapter we review the rail industry in Canada, the railway companies that provide intercity, remote access, tourist and extended commuter services and the views Canadians expressed to us on passenger rail issues.

We then undertake a more detailed examination of the operations, financial performance and future prospects of VIA Rail, including a comparison of VIA Rail with Amtrak, the United States' national passenger rail service. We conclude this section with our recommendations for the main passenger rail operations and for remote rail services.

We then consider the issues raised by proposals for new high-speed rail services, and make recommendations about how to approach high-speed rail decisions.

THE PASSENGER RAIL INDUSTRY IN CANADA

In Canada, passenger rail's share of the intercity travel market has declined. As in Europe and the United States, where car travel predominates and air travel has increased substantially for longer trips, the share of rail travel has declined and rail is now used primarily for shorter trips.

VIA Rail accounts for more than 90 percent of intercity passenger rail travel in Canada. VIA Rail inherited most of the nation's passenger rail operations by the late 1970s, when the federal government relieved Canadian National Railways (CN) and Canadian Pacific Ltd. (CP) of the responsibility for these services. Unlike the passenger railways

of other countries, including Amtrak in the United States, VIA Rail does not own large quantities of track, but rents track from the freight railways.

Other railways also provide intercity passenger services in Canada. The Ontario Northland Railway (ONR) is provincially owned. It provides service six days a week between Toronto and Cochrane (776 kilometres), and, three days a week, a mixed freight and passenger train service in the remote area between Cochrane and Moosonee (300 kilometres). The ONR also provides daily tour service between Cochrane and Moosonee during the summer.

The Ontario government's subsidy for ONR includes capital financing and approximately $15 million annually for operating expenses. The $15 million includes a federal subsidy ($2 million in 1989) paid through CN and the ONR to the government of Ontario for the Toronto to North Bay part of the Cochrane service.

The Algoma Central Railway (ACR) provides service between Sault Ste. Marie and Hearst (476 kilometres) six days per week during summer and three days per week during winter. Most of this route is without road access. Algoma Central Railway also operates tours on this route that account for the majority of its passenger revenues. During the 1980s, ACR received $15 million under the terms of a joint federal-provincial agreement. In addition, federal taxpayers pay approximately $2.5 million per year for this service.

The provincially owned British Columbia Railway (BCR) offers daily service between North Vancouver and Lillooet (254 kilometres). Trains continue through to Prince George (490 kilometres) three days per week and daily during the peak season. Over half of the ridership consists of tour groups. British Columbia taxpayers provide approximately $3 million a year for operations, with separate funding for the purchase and upgrading of passenger equipment as required.

The Quebec North Shore and Labrador Railway (QNS&L) provides twice-weekly mixed train service from Sept-Iles to the Schefferville–Labrador City area (about 600 kilometres through an area without road access). The federal government pays approximately $1 million in annual subsidies for this service.

Ontario's GO Transit and the Montreal commuter services provide shorter distance intercity services, and there are small tourist services in the Yukon Territory, Alberta, Ontario, Quebec and New Brunswick. Also, Rocky Mountaineer Rail Tours, a private-sector company, operates two routes: one between Vancouver and Calgary, through Banff, and the other between Vancouver and Jasper. Rocky Mountaineer Rail Tours receives no subsidy.

Amtrak offers daily trains between Toronto and Chicago, via Sarnia, and between Toronto and New York, via Niagara Falls. Amtrak's Toronto trains, which carry passengers between cities within Canada, are operated by VIA Rail and subsidized as part of the VIA Rail network. There are no Canadian subsidies for Amtrak's two services between Montreal and New York or Washington, D.C., since they do not carry passengers from point to point within Canada.

Most passenger rail services in Canada are subsidized (Table 12-1). Federal taxpayers cover 100 percent of VIA Rail's losses and 80 percent of the losses for federally chartered carriers required to provide passenger rail services. Provincial taxpayers pay for losses incurred by provincially owned railways. Although passenger rail systems in most other countries recover a somewhat greater percentage of their costs than does VIA Rail, they are government-owned and operated and require substantial taxpayer support in terms of funding.

Table 12-1

DIRECT GOVERNMENT SUBSIDIES PAID FOR PASSENGER SERVICES IN CANADA, 1987[a]

Company	Operating subsidy ($ millions)	Passengers ($ thousands)	Passenger-km ($ millions)	Revenue per passenger-km (¢)	Subsidy per passenger-km (¢)
VIA Rail	499.0	5,865.0	2,092.6	9	24
BCR	2.5	78.9	18.2	9	14
ONR	16.1	132.4	53.6	8	30
ACR	2.3	39.8	9.0	10	26
QNS&L	1.0	18.7	5.4	n/a	18

Source: Information from carriers.

a. Amounts are approximate. In addition, there were losses and capital contributions borne by shareholders (including governments) or cross-subsidized by the freight traffic.

WHAT CANADIANS TOLD US

By far, the majority of people who appeared at our public hearings spoke about passenger rail service. The views on passenger rail were the most strongly held views that we heard. There was a belief among most interveners that passenger rail had served Canadians well in the past, that it was necessary for the future, and that it was faltering today because it had not been given a fair chance by the federal government.

Canadians' reasons for supporting passenger rail vary. Rail support groups and environmental groups argued that rail is the most environmentally friendly mode of travel, and is also the safest and most accessible mode of travel. Some local governments, especially in regions whose services were cut in 1990, saw passenger rail service as vital to their local economies. The tourism industry noted passenger rail's value in attracting foreign visitors. Unions argued for the necessity of preserving existing rail jobs. Still others argued, especially in the case of new high-speed train technology, that greater investment in passenger rail service will provide a general boost to the economy.

Many Canadians see rail service as a right. They made the point that rail had played a key role in building Canada, and continues to play a role in holding the country together. Those who had been directly affected by the VIA Rail cuts often expressed outrage at what they saw as the loss of an important transportation option. Even communities that had not been served by passenger rail for many years called on the federal government to reinstate VIA Rail services.

Many interveners felt that passenger rail had been set up to fail and that the solution lies in fixing VIA Rail. Many supporters of rail, and VIA Rail itself, argued that rail service cannot succeed until VIA Rail is given the freedom to manage without federal government interference. Rail unions stated that VIA Rail had been mismanaged from the beginning. Some groups, such as the Western Rail Passenger Restoration Committee, suggested that VIA Rail would be much better off if it were modelled after Amtrak. One widely expressed view was that an infusion of capital would allow VIA Rail to succeed, and that this expenditure would be justified because governments in Canada now subsidize the other modes of passenger travel. Few interveners suggested how Canadians could pay for passenger rail service if its potential ridership would not support it.

Other interveners pointed to high-speed rail service in Europe as an example of how passenger rail can be successful. It was suggested that, in addition to passenger transportation benefits, a high-speed rail project in the Toronto to Montreal corridor would boost the economies of both Ontario and Quebec. Few interveners felt that high-speed rail could succeed without taxpayer help — at least in providing the necessary infrastructure.

VIA Rail

FINANCIAL PICTURE

During the 1980s, VIA Rail's passenger volume and average trip length declined. Table 12-2 shows VIA Rail's financial and operational performance from 1980 through 1991. Annual passenger volume dropped

from 7.6 million in 1980 to 6.5 million by 1989, and passenger-kilometres dropped from 3,104 million to 2,442 million in the same period, reflecting shorter average trip lengths. The 1990 and 1991 figures reflect the cuts to service in January 1990, and those for 1990 include some costs associated with the transition to less service.

Table 12-2
VIA Rail: Financial and Operational Results, 1980–1991

Results	Year						
	1980	1983	1986	1988	1989	1990	1991
Passengers (thousands)	7,586	6,541	6,286	6,415	6,457	3,536	3,633
Passenger-km (millions)	3,104	2,411	2,261	2,299	2,442	1,263	1,320
Operating deficit per passenger-km (¢)	10	19	21	25	22	31	28
Total subsidy ($ millions)	408	598	506	637	532	382[b]	368[c]
Subsidy (percent)[a]	74	75	71	74	68	73	71

Source: **VIA Rail annual reports and corporate plan summaries.**

a. **Government funding, including capital funding, as a percent of total expenditures.**
b. **Does not include $60 million for network restructuring.**
c. **Does not include $25 million for network restructuring.**

VIA Rail's subsidy grew from $408 million in 1980 to $637 million in 1988. After the federal government cut routes in 1990, the subsidy fell to $382 million. Adjusted for inflation, the increase prior to the VIA Rail cuts was small — only 5 percent in 10 years. Despite an increase in revenues, the operating deficit per passenger-kilometre (adjusted for inflation) increased by 27 percent.

From its inception through 1991, VIA Rail cost Canadian taxpayers $5.6 billion in operating losses and $1.2 billion in capital expenditures — for a total of $6.8 billion in subsidies.

SERVICES AND COSTS

In 1989, before the cutbacks, VIA Rail offered more than 35 different passenger rail services. We have grouped the non-remote services as follows:[1]

- Toronto–Ottawa–Montreal (Tor–Ott–Mtl);
- Southwestern Ontario (SO);
- Western Transcontinental (WT), Vancouver to Toronto;
- Eastern Interprovincial (EI), between Montreal and the Maritimes; and
- Regional, Maritime and others.

Could VIA Rail's services recover more of their costs in the future and become self-sufficient? To answer this question, we examined non-remote service groupings, including services terminated in January 1990. We considered a scenario (Table 12-3) in which VIA Rail increased ridership, raised fares and brought in greater revenues. We adjusted VIA Rail's recent actual service costs to reflect anticipated improvements that could result from better labour practices, modern equipment and reduced overhead costs. For example, we assumed engine and train crew reductions for certain services. In addition, we reduced equipment maintenance costs to reflect anticipated economies from recent and planned equipment investment and renovation.

As far as was feasible, we used the same financial parameters in our calculations for passenger rail as were used for the other modes. We included depreciation and interest on the investment in passenger locomotives and cars, and the costs of using the track are included as these are direct payments by VIA Rail to the track owners. We did not include full capital charges for the investment in stations, maintenance shops and other publicly provided infrastructure; therefore, VIA's costs are slightly underestimated.

Even with the assumed improvements shown in Table 12-3, no VIA Rail service could recover its costs without steep price increases. Modernized, efficient equipment, improvements in crewing practices, and other economies would reduce the cost of passenger rail operations. The result, shown in Table 12-3, would be a major improvement in VIA Rail's cost recovery and, consequently, a significant

reduction in subsidies from Canadian taxpayers. Such economies, however, would not result in any of the services approaching self-sufficiency.

Table 12-3
VIA Rail Services — Adjusted for Anticipated Improvements, $1990[a]

	Tor–Ott–Mtl	SO	WT	EI	Maritime Regional
Annual passengers (thousands)	2,004	1,326	202	297	275
Average trip length (km)	351	183	1,430	716	229
Load factor (percent)	70	47	79	64	36
Passenger-km/train-km	191	122	158	183	43
Revenue ($ millions)	76	31	31	19	5
Revenue per passenger-km (¢)	11	13	11	9	8
Costs of operations ($ millions)	83	44	63	45	14
Customer service ($ millions)	31	18	12	10	4
Administration ($ millions)	13	7	8	6	2
Capital charges ($ millions)	20	15	20	20	5
Total costs ($ millions)	**146**	**84**	**103**	**81**	**25**
Deficit ($ millions)	70	54	72	62	20
Cost recovery (percent)	52	36	30	24	20
Subsidy (percent)	48	64	70	76	80
Deficit per passenger ($)	35	40	356	209	73
Deficit per passenger-km (¢)	10	22	25	29	32

Source: **Royal Commission staff estimates from data provided by VIA Rail.**

a. **Where available, 1990 data were adjusted for assumed improvements in costs, ridership and revenues (see text). The "Maritime Regional" column is based on data for VIA Rail's (pre-cuts) 1989 Maritime regional services with similar adjustments. Totals do not always add up due to rounding.**

Most VIA Rail services discontinued in 1990 had particularly low cost recovery. The routes included in the Maritime Regional services column of Table 12-3 were discontinued. Even allowing for reasonable improvement in both costs and revenues, these services would remain far from recovering operating costs.

VIA Rail's remote services have declining ridership and high costs. The federal government contracts with VIA Rail to operate eight mandatory services that include remote locations without access to all-weather roads. A ninth is serviced by the Vancouver to Toronto train. Ridership on remote services is shown in Table 12-4. Demand for these services has been declining, while costs have been increasing. The estimates of the costs to taxpayers of VIA Rail's mandatory services are shown in Table 12-5.

Table 12-4
Mandatory Services Annual Ridership, 1985–1990[a]

Route	Year					
	1985	1986	1987	1988	1989	1990
Prince Rupert–Jasper	23,334	29,712	26,817	26,665	27,171	16,766
Winnipeg–Churchill	57,493	50,334	52,009	48,847	44,298	30,446
The Pas–Lynn Lake	11,616	9,156	8,660	8,871	7,679	8,603
Wabowden–Churchill	1,631	1,041	952	797	399	210
Winnipeg–Capreol	71,643	65,057	54,616	54,101	48,479	[b]
White River–Sudbury	8,598	10,423	9,590	10,195	9,805	4,715
Cochrane–Senneterre	6,815	5,997	5,329	5,043	4,293	1,591
Senneterre–Montreal	54,615	50,798	42,979	43,197	38,131	21,759
Jonquiere–Montreal	37,295	34,416	31,350	31,400	27,248	11,937

Source: **Data provided by Transport Canada.**

a. **Includes traffic handlings to non-remote segments of routes.**
b. **Service to remote area provided by Vancouver–Toronto train since 1990.**

There is little potential to improve cost recovery for the mandatory services by increasing revenues. Even a doubling or tripling of fares would have only a minor effect on losses. To reduce subsidies, the costs of providing mandatory services would have to be considerably reduced. VIA Rail could achieve this cost reduction if it limited services to truly remote areas. We do not believe that it is sensible to massively subsidize hundreds of kilometres of passenger railway service in areas where there are parallel road and bus services, and, in some cases, air services.

Table 12-5
MANDATORY SERVICES COST RECOVERY, 1990

Route	Total subsidy ($000)	Recovery ratio (%)	Subsidy per passenger-kilometre ($)
Prince Rupert–Jasper	12,688	7	1.24
Winnipeg–Churchill	19,409	8	1.24
The Pas–Lynn Lake	1,267	10	0.78
Wabowden–Churchill	59	8	1.26
Winnipeg–Capreol	Served by the Western Transcontinental		
White River–Sudbury	3,082	3	3.45
Cochrane–Senneterre	1,927	2	11.00
Senneterre–Montreal	9,799	6	1.70
Jonquiere–Montreal	5,587	5	1.92
Total excluding Winnipeg–Capreol	**53,818**	**7**	**1.44**

Source: Royal Commission staff estimate based on data provided by Transport Canada.

COMPARING VIA RAIL WITH AMTRAK

The passenger rail systems of most other countries would not, generally, serve as useful comparisons with Canada's passenger rail services. In Western Europe, rail is used primarily for passengers, with freight being a secondary activity. The opposite is true for Canada. The geography of Europe, with large, densely populated cities in close proximity to each other helps to make train travel preferable to air travel between population centres.

Amtrak operates in a geographic and cultural environment somewhat like that of Canada. Distances between cities in the United States are large, and most Americans prefer car and air travel to passenger rail.

Amtrak's percentage of cost recovery has improved steadily. Table 12-6 shows that Amtrak has had decreasing deficits and subsidies since 1983. Officials from Amtrak state that operating deficits will disappear by the end of the century, but that the government must continue to provide a capital subsidy.

Table 12-6
AMTRAK: FINANCIAL AND OPERATIONAL RESULTS, 1983–1989

Results	Year						
	1983	1984	1985	1986	1987	1988	1989
Passengers (millions)	18.9	19.5	20.8	20.3	20.4	21.5	21.4
Passenger-km (millions)	6,807	7,127	7,768	8,071	8,406	9,142	9,433
Operating deficit per passenger-km (¢)	12	13	10	09	08	07	07
Total subsidy ($ millions)	977	980	935	776	774	644	619
Subsidy (percent)[a]	60	57	54	48	45	37	33

Source: **Royal Commission staff calculations based on data from Amtrak annual reports.**

a. **Government funding as a percentage of total expenditures.**

Why is Amtrak's performance better than that of VIA Rail? We identified a number of reasons why Amtrak is enjoying lower deficits and better cost recovery. To start with:

- Amtrak uses up-to-date, efficient rail equipment.
- Amtrak's labour practices permit higher productivity than VIA Rail's.
- Amtrak has a more favourable formula than VIA Rail for paying the freight railways for use of their track, although the difference only accounts for a 1 to 2 percent difference in total costs.
- From the beginning, VIA Rail had less freedom to make decisions due to the lack of a legislated mandate. Unlike Amtrak, VIA Rail was forced to take over all routes previously served, whereas the least viable U.S. routes were discontinued before Amtrak took over.
- In 1989, Amtrak had $400 million in general revenue from non-intercity passenger rail business such as commuter services, from equipment maintenance services, from charges to freight railways for use of its track in the northeast corridor of the United States and from carrying mail.

But these reasons do not explain all the differences between VIA Rail's and Amtrak's performance. Some of the remaining difference lies in the nature of the services offered by each company.

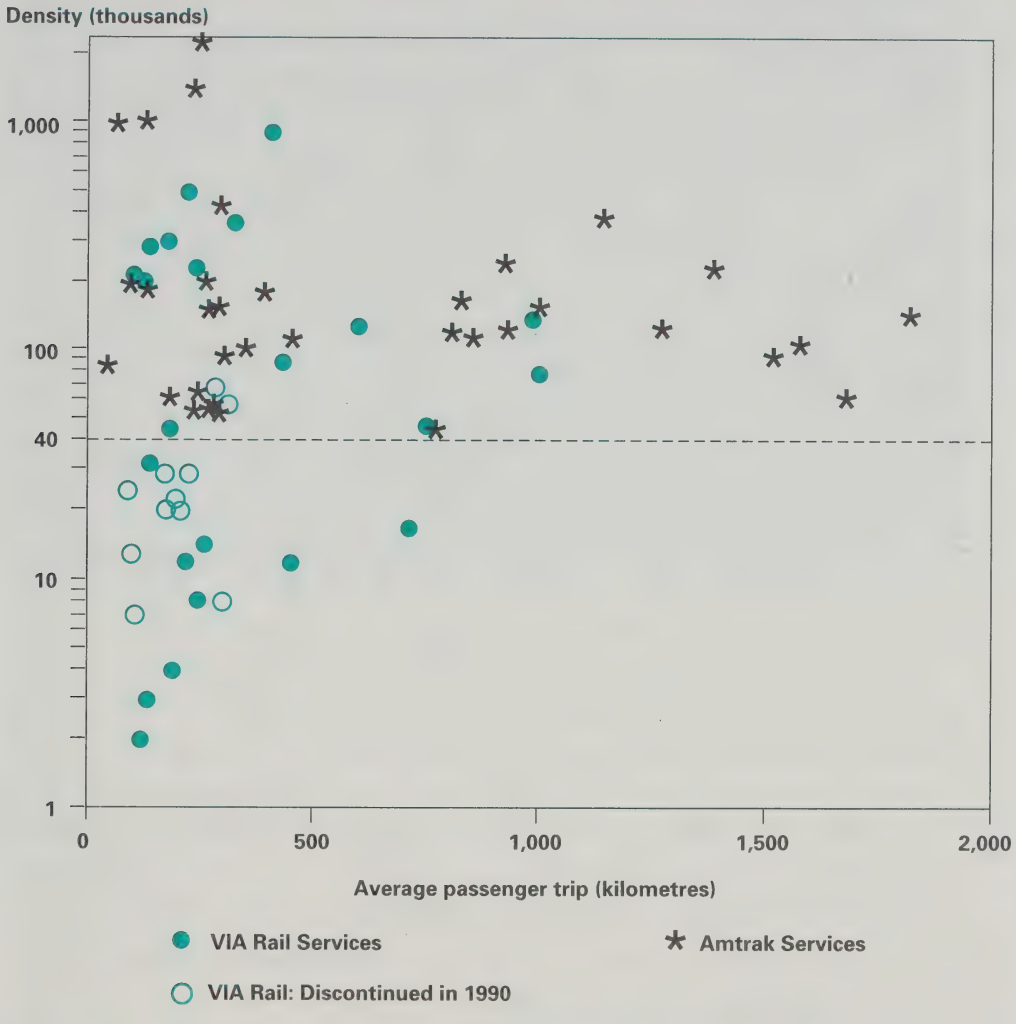
VIA Rail offers more services relative to population size. Before comparing individual services, we note that, even after the 1990 service cuts, VIA Rail still provides about 30 percent more passenger-kilometres of service per Canadian than Amtrak does per American. VIA Rail also has about three times the length of route network per capita. Thus, the average number of riders on VIA Rail per kilometre is lower than that of Amtrak, and VIA Rail has many more routes with very low ridership. Amtrak has no services with fewer than 40,000 passengers per route-kilometre, whereas VIA Rail, even after the 1990 cuts, has several such services (Chart 12-1).

Chart 12-2 shows the operating cost-recovery ratio for selected Amtrak and VIA Rail services. To improve comparability we have excluded Amtrak's Metroliner service between New York and Washington, D.C., services where the average passenger travels less than 100 kilometres, and services where sleeping accommodation is provided. As Chart 12-2 demonstrates, VIA Rail's lowest density services, some of which were eliminated in 1990, have very poor cost recovery and few services recover their operating costs.

Cost recovery for VIA Rail would be improved by eliminating more of the less-used services, and improving service and increasing fares on the high-use routes. This strategy was adopted for Amtrak at its outset.

Some Amtrak services are similar in density and length to some VIA Rail services in the Windsor to Quebec City corridor. In some cases, their cost-recovery rates are also similar; in others, Amtrak's cost recovery is better for various reasons.

Chart 12-1
Amtrak and VIA Rail Services: Density versus Average Trip Length, 1989

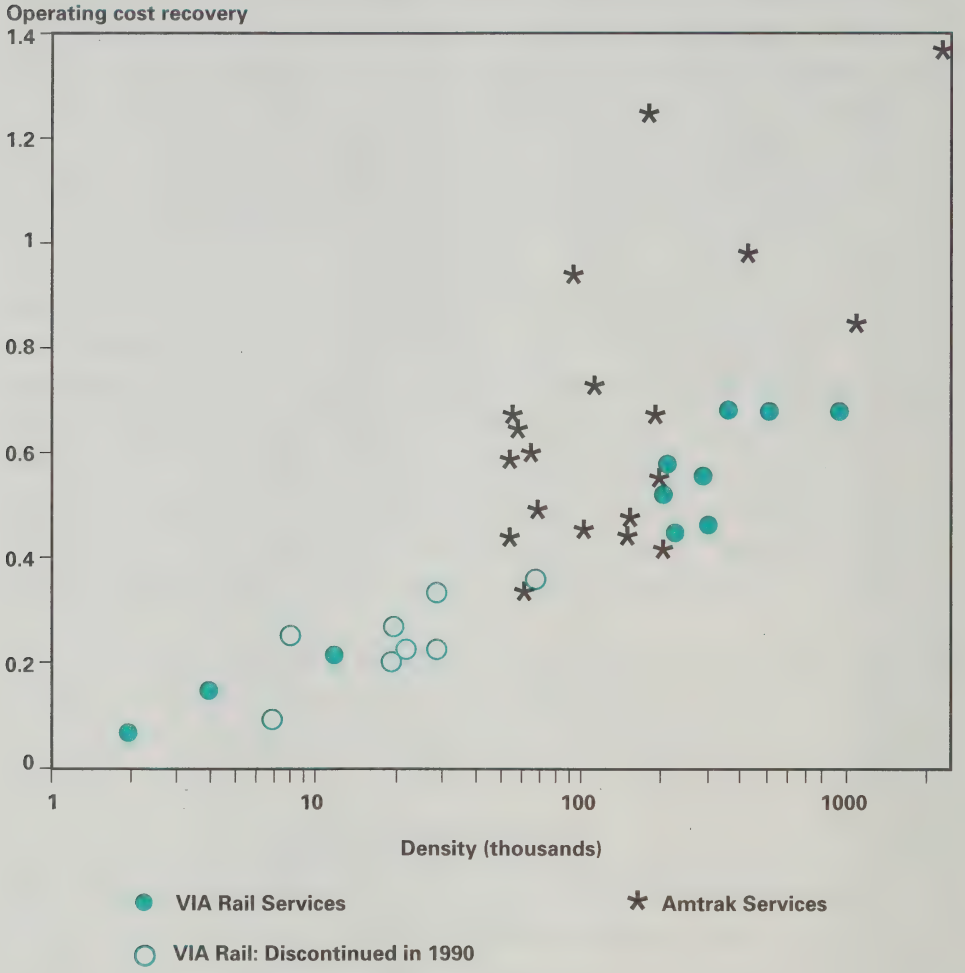


Sources: Data provided by carriers and Royal Commission staff calculations.

Note: Density = pass-km per route-km.

Chart 12-2

Amtrak and VIA Rail: 1989 Operating Cost Recovery for Intermediate Distance Non-Sleeper Service



Sources: Data provided by carriers and Royal Commission staff calculations.

Note: Density = pass-km per route-km.

EXAMPLES OF COMPARABLE VIA RAIL AND AMTRAK ROUTES AND THEIR RATES OF OPERATING-COST RECOVERY

1) VIA Rail:	London–Toronto	53%
Amtrak:	Milwaukee–Chicago	55%
	Harrisburg–Philadelphia	41%

This similarity in cost recovery indicates that, for certain kinds of routes, VIA Rail can equal Amtrak's financial performance.

2) VIA Rail:	Montreal–Quebec City	46%
Amtrak:	Oakland–Bakersfield	67%

In this case, the Oakland–Bakersfield route benefits from a substantial capital contribution from the state of California.

3) VIA Rail:	Toronto–Ottawa	69%
Amtrak:	Niagara Falls–New York	98%

Amtrak's high cost-recovery rate on the Niagara Falls–New York route can be attributed, in part, to high-performance turbo trains, whose capital costs are not reflected in Amtrak's figures.

Unlike Amtrak, VIA Rail has no specific founding legislation. VIA Rail is accountable to the Minister of Transport for providing specified services in exchange for specified payments under the terms of an annual confidential contract. Transport Canada negotiates the terms of the contract and monitors performance. The Minister must approve any departure from the specifications in the contract. The National Transportation Agency has the power to regulate some aspects of VIA Rail's fares, and the federal government approves VIA Rail's operating and capital budgets.

Amtrak, on the other hand, was created by an Act of Congress, and is dependent for its operating deficit and capital funding on appropriation bills passed by Congress. Amtrak must answer to Congress regarding the financial performance of the corporation, and to individual members where its activities are of local interest. The corporation is accountable to the Federal Railroad Administration for safety matters only.

Amtrak's superior financial performance can be partially explained by differences between U.S. and Canadian markets, different accounting treatments and arrangements for payment for access to the track, greater renewal (at taxpayers' expense) of rolling stock, and assets that generate revenue from sources other than intercity railway passengers.

Representatives from VIA Rail, and others concerned about its future, told us that VIA Rail has been hindered by lack of a clear mandate and the authority to manage its own affairs. While we believe that the poor financial performance of Canada's passenger rail system is predominantly due to factors beyond any management's control, we agree that federal government involvement in investment and operations has worsened an already difficult financial situation.

THE FUTURE OF VIA RAIL

Investing in new equipment would reduce VIA Rail's operating costs. The Minister of Transport's (1985) Task Force[2] stated that new equipment and modernization would be necessary if VIA Rail were to provide effective passenger rail service and to control its deficits. VIA Rail is currently rebuilding 1955-vintage cars at a cost in excess of $1 million per car, as well as completing a program of upgrading track, equipment, maintenance facilities and stations.

We recognize that VIA Rail's operating costs could be reduced and ridership improved by rebuilding or replacing equipment. Investment in new equipment, however, must be based on more than shifting deficits from the operating accounts to the capital account. Governments must decide whether VIA Rail should continue providing current services, or even continue as an entity, before undertaking any new long-term capital investments.

Heavily subsidized passenger rail is detrimental to competition with other modes. The principles of equal treatment and fair competition in our recommendations would be violated if a subsidized rail service

continued to compete with non-subsidized modes that must face full market pressures. VIA Rail's presence with a subsidy in the market gives it an unfair advantage over both the air and the bus industries. Price competition is especially acute in the region between Windsor and Quebec City, where buses, air carriers and VIA Rail often operate parallel services.

We are also concerned that under-priced rail services might be over-used relative to other goods and services in all sectors of the economy, including other modes of passenger transportation. Although the effect may not be substantial in the VIA Rail case, artificially under-priced transportation generally leads to inefficient decisions about travel and the way Canadians choose residential, business and recreational locations.

Fares based on full cost recovery would greatly increase the price of train travel. Full cost-recovery fares between Toronto and Montreal for one-way travel would average over $120, more than double the present average. For other VIA Rail routes and services, the required fare increases would be even higher. The average fare for an average (short) rail trip in southwestern Ontario would increase from $25 to $65. At such fares, the demand for rail travel would likely drop, requiring even higher fares to recover costs.

Pricing all transportation to include charges for environmental damage would, however, modestly improve rail's relative position on some routes. Some rail advocates suggested to us that if the pricing of all modes included charges for environmental damage, passenger rail might be attractive in terms of price. In terms of smog-creating pollution and carbon dioxide (CO_2) emissions, rail's performance compared with competing modes is mixed.[3] Transcontinental trains, with their sleeping and dining cars, consume more fuel per passenger-kilometre and create more CO_2 and other pollutants than airplanes or cars (Chapter 7).

Rail travel is generally less polluting than travel by air or car if enough trains with modern equipment operate at good occupancy rates over

moderate distances — for example, the Toronto–Ottawa–Montreal service. Even with modern trains and good occupancy rates, rail is not less polluting than intercity bus. Compared with all the rail services we examined, and all classes of emissions, intercity bus provides service at a lower environmental cost per passenger-kilometre.

Although rail has not kept pace with the emissions reductions achieved by the car, bus or airplane, we recognize that changes in technology could reduce train emissions. Although the potential for emission reduction in conventional rail is limited in the short term, using improved diesel engines or electric trains could reduce emissions (depending on the source of the electrical power).

The expenditures required for the termination of VIA Rail would cost taxpayers approximately $300 million, or less than one year of subsidy. As a corporation, VIA Rail has obligations and long-term contracts, but also assets that could be sold. In particular, railway labour contracts negotiated during the late 1980s provide long-term guarantees of income to many employees. These contracts, which are similar to contracts with CN and CP, mean that, after eight years of work, many employees are guaranteed their salary until pension age, regardless of whether they work or not, provided they are available for work. Payments that might be required under these contracts are believed to have a present discounted value of $350 million.

Other costs for the orderly termination of VIA Rail would relate to lease- and supplier-contracts, unfunded pension liability, losses in revenue during the last months of train operations, payments for environmental damage and other costs of winding down a company. These costs would be offset by approximately $250 million from the net proceeds of the disposal of assets used in VIA Rail's operations — the sale of cars, locomotives, track, stations, maintenance shops and land.

RECOMMENDATIONS FOR PASSENGER RAIL

The question of the future of passenger rail service and specifically VIA Rail was one of the most difficult — if not the most difficult — that we faced. Historically, Canada has had an enviable nation-wide passenger rail system that played a major role in the development of the country and was an essential service in times of emergency. And yet, changes in overall demand for passenger transportation during the last 40 years (Chart 2-5) have left passenger rail in a precarious position. Not one of VIA Rail's services, at present cost and revenue levels, approaches recovery of its operating costs, let alone capital costs. Nevertheless, significant numbers of Canadians from coast to coast expressed concern about the future of passenger rail and told us that they wanted the trains to continue running. Some interveners strongly supported both transcontinental and regional services. It is unlikely, however, that the VIA Rail operation, as currently structured, could become self-sufficient under our principles and objectives for future passenger transportation in Canada, even with full allowance for environmental charges.

We believe, however, that there may be a future for passenger rail in Canada, and that it should be given a chance under favourable conditions to prove itself in the same competitive market as all other modes.

We considered recommending a system whereby a number of service providers could bid for subsidies below the levels noted in Table 12-3. This would be in keeping with our "fit, willing and able" principle. There is, however, a risk that a permanent system of subsidies would emerge from this approach, or that VIA Rail would find itself dismantled and replaced in part by a number of even more fragile companies. For these reasons, we prefer a transition policy based on a continuation of VIA Rail as the primary provider of intercity passenger rail transportation.

Therefore, we **recommend** that:

12.1 The federal government pass legislation to give VIA Rail a corporate mandate that allows it to operate on a commercial basis, with such legislation to provide for:

(a) a "sunset" provision on the general subsidy that allows 10 years to achieve break-even, after which the subsidy would be withdrawn;

(b) a 10-year schedule of declining operating subsidies to VIA Rail so that such subsidies reach zero at the end of the 10-year period;

(c) a 10-year budget for VIA Rail for capital projects that have a reasonable chance of repaying the costs in future revenues;

(d) sufficient freedom to VIA Rail's management to ensure that it can exploit the advantages of the rail mode to the fullest, including investment, route selection, service levels and pricing, but having due regard for competition policies that prohibit predatory pricing;

(e) the ability for VIA Rail to borrow funds in the capital markets, but with no government guarantee, once the government is satisfied that VIA Rail will be viable; and

(f) any long-term commitment by VIA Rail, including wind-down costs, to be accounted for and provided for within the 10-year subsidy schedule.

Adherence to this mandate would be monitored by the National Transportation Agency. VIA Rail management would also, of course, be subject to general competition rules prohibiting anti-competitive behaviour. It would be important that competition policy prevent subsidized rail services from using predatory pricing to undercut bus and air services during the transition period.

VIA Rail can notify the federal government that it intends to abandon a route prior to the end of the transition period. In that event, the federal government should reduce the subsidy to reflect this. VIA Rail management should decide whether or not to have a transcontinental train, its frequency, and what route it should take. Other questions, such as the type of service (luxury, tourist, seasonal or year-round), would be handled the same way.

If a government believed that a different route should be served or that there should be greater service frequency, then that government would be required to say so publicly, to contract with VIA Rail for the service, and pay for the service out of their general tax revenues.

We expect that, on routes that it aimed to make viable, VIA Rail would make major efforts to improve service; these could include a reservation system with seat selection, terminals with better accessibility for travellers with disabilities and elderly travellers, and improved speed and in-train amenities to attract business travellers.

Provinces and regions might choose to operate regional or local passenger railways, or to contribute additional monies (through VIA Rail or another rail carrier) to achieve local objectives, such as reduced highway congestion, and improved urban development.

Therefore, we **recommend** that:

12.2 VIA Rail be free to compete for other services, including operating commuter services and transporting mail.

12.3 VIA Rail be required to file with the federal government and to publish detailed annual operating plans and financial reports that include the costs and revenues related to individual routes.

12.4 At the end of 10 years, all routes be unsubsidized and open to any fit, willing and able new entrant.

Remote Services

As we stated earlier, most of the 6,700 kilometres served by mandatory remote trains are not truly remote. Many of the routes are parallel to highways and are served by bus and air carriers, particularly between many of the larger centres. Since passengers have alternative modes of transportation available, rail ridership on these routes has been decreasing. These services have low cost-recovery rates, none recovering more than 10 percent of their costs (Table 12-5).

All remote services should be limited to bringing passengers to the closest convenient point of transfer to a commercial carrier. With few exceptions, a strictly remote route would not be physically connected to VIA Rail's network. These services would not require VIA Rail's marketing, reservations and customer services and might not need to be provided by VIA Rail. An example of such an alternative is provided for one such route in Chapter 18.

Mixed trains (freight trains with a passenger car, or even a combination passenger-local freight car) may be the cheapest way to provide rail passenger service in some remote areas. For example, mixed trains are used on the weekly Wabowden to Churchill service and on some runs from The Pas to Lynn Lake. Historically, the freight railways, which operate these trains, have not charged for crew, locomotives and track access when such passenger accommodations are added, but only for fuel and maintenance for the passenger cars.

Although mixed trains may provide an inexpensive alternative to passenger-only rail service, the combination of freight and passengers does have problems. While passenger service is usually on a fixed

schedule, freight assignments often do not match the passenger schedules or routes. In addition, passenger service requires more stops than freight traffic, causing inefficiencies for shippers. Where mixed train service is appropriate, it may be simpler to have it provided by the freight carrier.

We therefore **recommend** that:

12.5 Where governments judge that a subsidy for passenger transportation to remote communities is justified:

(a) the most efficient mode and carrier be used and, where feasible, a competitive bidding process be implemented;

(b) any subsidized remote access service (regardless of mode) be designed to take passengers out to and bring them in from the closest convenient point where transfer can be made to a commercial unsubsidized carrier; and

(c) subsidies and their purposes be open to public scrutiny.

High-Speed Rail

Governments and industry have been investigating high-speed rail for the Windsor to Quebec City corridor. The feasibility of high-speed rail in this corridor has been the subject of many studies by potential carriers, equipment manufacturers and governments. It has also had a great deal of promotion in the media. Early research on the viability of high-speed rail was inconclusive, prompting the provinces of Ontario and Quebec, in conjunction with the federal government, to initiate another series of studies. These studies are inquiring into the development, installation and operation of a high-speed rail system in the Windsor to Quebec City corridor. They include:

- assessing market feasibility;

- exploring specific technologies;
- identifying corridors, stops and interconnections with other transportation services;
- defining the roles of the private sector and governments in implementing high-speed rail; and
- assessing industrial benefits.

We have neither the expertise, the time, nor the budget to duplicate such studies and, therefore, cannot comment on the technologies available, the estimated costs, projected ridership or revenues of these systems. On the other hand, it is within our mandate and our resources to examine high-speed rail from the perspective of long-term transportation planning and policy.

There are many high-speed rail technologies on the market and more will become available in the future. In addition to the Swedish, Japanese, French and German high-speed, steel-wheel-on-rail technologies, both the Germans and the Japanese are developing magnetic levitation systems (maglev).

High-speed rail systems have high fixed costs and low variable costs. As a result, they need high ridership to be successful. Otherwise, they run large deficits. Successful high-speed rail operations in France and Japan have had ridership levels that have allowed them to charge moderate fares with a range of discounts. Modestly discounted fares create more demand for travel, which, in turn, leads to increased frequency and convenience in scheduling for travellers. This cycle has led to double-digit increases in ridership. The key issue is whether there would be enough riders in any Canadian corridor to pay the costs for a high-speed rail system.

There are already buses, airplanes and cars operating in these corridors, and a subsidized high-speed rail service would have unfair advantage over these private-sector services, and cause inefficiencies in

the transportation system. In addition, with our recommendations concerning VIA Rail in place, some of VIA Rail's Windsor to Quebec City corridor services might become commercially viable. We believe that a high-speed rail system should be treated consistently with our principles. Any high-speed rail system, like any transportation system project, should be paid for by transportation system users who would benefit and not by the taxpayer. In particular, as we said in our Interim Report:

> From the point of view of an integrated transportation system, it is important that further studies give due account to spill-over benefits such as relief of congestion and reduction of accidents. Since there are joint costs and benefits in an integrated system, it is also important to assign each mode its correct costs. For example, some of the cost of building rail underpasses and overpasses should be assigned to highways, since highway users also benefit from the availability of this infrastructure, and since joint costs of intersections can be assigned to a single mode only if the other mode sharing the intersections has been given "right of way."

Therefore, we **recommend** that:

12.6 Governments invest in high-speed rail infrastructure only when the expected transportation system benefits exceed the costs, and taxpayers do not have to pay any operating subsidy.

12.7 The benefits and costs of any high-speed rail project in which a government invests or subsidizes be made public and the public be consulted on the implications of the government's decision.

12.8 The federal government establish the regulations under which any high-speed rail system would operate, including safety and environmental regulations.

In this chapter we have discussed how our principles can be applied to improve the passenger rail sector, a mode of transportation that is presently heavily subsidized.

ENDNOTES

1. Some of VIA Rail's documents pool the results for all operations between Windsor and Quebec City.

2. A Rail Passenger Action Force (H.M. Horner, R. Fortin and N. Vincent) was appointed in November 1984 to report by May 1985. The Action Force's objective was a new national rail passenger plan.

3. This discussion is based on current VIA Rail technology. We discuss elsewhere the possible benefits from alternatives, such as high-speed electric railway technologies.

CHAPTER 13

APPLYING THE PRINCIPLES TO INTERCITY BUS CARRIERS

INTRODUCTION

In examining the intercity bus carrier industry, we asked:

- What is the role of the bus in delivering economical transportation to Canadians?
- Would this role be more effectively performed if the industry were more open to new entrants?
- Would the intercity bus industry remain viable and competitive if economic regulation was substantially relaxed?
- Would a less-regulated bus industry still deliver transportation service to Canada's rural communities?

THE BUS INDUSTRY IN CANADA

MARKETS

Most bus travellers use this service because it is the cheapest form of intercity travel, particularly for those who do not have a car or who are unable to drive. Thus, those who use the bus most heavily are people of modest means, such as students and some older people. Most bus travel is for recreation or visits to family and friends, although there is some business travel on short-haul routes.

Some bus companies have had limited success in offering luxury services (with spacious seats, refreshments and other amenities) at higher fares than for conventional services. In general, however, premium bus services have failed to attract sufficient riders to render them viable.

Buses serve many Canadian communities. According to the *Official Canadian Bus Guide*, in 1991, the intercity bus industry provided scheduled service to approximately 3,000 points in all provinces and territories (down from 3,400 in 1978).[1] Most travellers use the bus for short trips. In 1991, bus passengers travelled an average distance of less than 200 kilometres.

Bus operations are diverse, from large operators with multiprovincial service to small carriers offering only local services. Greyhound Lines of Canada Ltd., the largest bus operator, has 400 buses serving an extensive route system stretching from Vancouver to southwestern Ontario, and north into the Yukon and Northwest Territories. Dewdney Trails operates a service three times a day each way between Castlegar and Trail, British Columbia, a 30-minute trip. An even smaller operation, Atlin Coach Lines, provides a combined freight and passenger service for six to eleven passengers daily from Whitehorse, Yukon Territory, to Atlin, British Columbia.

REGULATORY ENVIRONMENT

Economic regulation of the scheduled intercity bus industry in Canada, in particular the restriction of entry by firms that would compete with existing services, continues today. This contrasts sharply with other countries that have opened the scheduled intercity bus industry to greater competition (notably the United Kingdom and the United States), and with the relaxed economic regulation of the air transportation and freight transportation industries in Canada. Bus regulation is enforced by provincial/territorial transport boards, which have authority over carriers whose operations are entirely within a single province or territory. In addition, the federal government has delegated its authority to the boards for carriers whose operations extend beyond the province or territory.

COSTS AND REVENUES

Of all the types of passenger transportation, bus travel comes closest to paying its way. As we noted in Chapter 3, intercity buses pay fuel

taxes that approximately cover the costs of their use of the roads, and would remain the most inexpensive type of public transportation if travellers paid the full costs of bus transportation, including charges for environmental damage and the costs of safety and accidents.

Many bus carriers also provide freight (parcel) services. In rural areas, the bus is often the only carrier of parcels that are over the Canada Post weight limit, and courier companies often use the bus service to deliver their packages. These freight services are an important source of revenue for bus carriers in remote and rural areas, but are much less significant to carriers in the more densely populated southern Ontario to western Quebec region, where a variety of courier, messenger and package delivery services compete for this business.

Charter services are also a source of revenue for the bus industry. In the more populous regions of Canada, most small, scheduled bus carriers and a significant number of the mid-size carriers earn most of their revenues from charter business, and to a lesser extent from school-bus contracts. For Greyhound, Voyageur Colonial and other large carriers, charter service is a profitable use of idle bus capacity.

TRENDS

The bus industry is an important participant in intermodal passenger transportation. Buses provide a public link to and between other modes of transportation. For example, bus and van services connect communities, train stations and airport terminals.

The market share for intercity scheduled bus service has been declining steadily. Since the 1950s, bus ridership has been dropping while total intercity passenger travel has grown. The intercity bus has been steadily losing ground to the car for short-distance travel and to the airplane for long-distance trips. The bus must also compete with subsidized rail service, especially in the Toronto–Ottawa–

Montreal triangle and in southern Ontario. The bus industry has responded to declining ridership by cutting back service frequency and route-kilometres and by raising fares.

The bus industry is highly concentrated and regionalized. In 1987, the five largest carriers held nearly 90 percent of the value of the assets in the industry, earned 84 percent of the revenues, and carried 81 percent of the passengers — up from 66 percent in 1980.

In eastern Canada, most carriers exchange passengers at or near their provincial borders. To get from Hamilton to Halifax, a person must travel using five different carriers, changing buses each time. Only Greyhound provides significant multiprovincial service — from Vancouver to Toronto.

Buses do not pollute the environment as much as other types of passenger transportation do. Buses consume less fuel per passenger-kilometre, resulting in lower carbon dioxide emissions. Current diesel-engine buses do have significant smog-inducing emissions, but there is considerable potential for improvement.

What Canadians Told Us

THE PUBLIC

In our public hearings, Canadians had little to tell us about bus transportation. In our review of Canadians' travel preferences, we found that they view buses as uncomfortable, and particularly poor in seating space and ventilation. They also complain about the condition of some bus terminals.

THE INDUSTRY

The strongest views on bus travel that we received came from the bus companies and their representatives, who made two major points:

The first point was that they suffer from unfair competition from VIA Rail (especially in the Toronto–Ottawa–Montreal triangle), because VIA Rail is highly subsidized by taxpayers. VIA Rail has been aggressive in its pursuit of market share in the shorter-distance, but higher-density markets. While its campaign has aimed in part at the air mode by emphasizing faster, more convenient and better service, VIA Rail also competes with the bus carriers through special discount fares. The bus industry believes that subsidized passenger rail service limits its ability to offer more and better services to bus customers. VIA Rail, on the other hand, argues that it pays for the infrastructure (stations and track) it uses, while buses do not pay for use of the roads.

The second major point was that the bus industry endorses the present regulatory regime, which restricts competition and allows profits to be generated on high-volume routes, but requires carriers to continue service on low-volume, unprofitable routes. The bus carriers argue that this system, with its cross subsidization, is necessary, if they are to provide service to smaller communities.

Government Policies: Past and Present

REGULATION

Regulation of the intercity passenger bus industry in Canada was introduced by provincial governments in the early 1930s to stabilize the industry. In 1954, in response to a complaint by a bus company, the Supreme Court of Canada determined that the federal government was responsible for every bus and truck operation whose business was extra-provincial — that is, extending beyond a single province or territory.

Because the federal government had no legislation, administrative structure or expertise in place, Parliament enacted the *Motor Vehicle Transport Act* of 1954. This Act delegated federal responsibility for

the economic regulation of motor-vehicle transport, including bus transport, to the provinces.

The *Motor Vehicle Transport Act, 1987* substantially deregulated trucking, but bus regulation was essentially unchanged. Provincial transport boards are to issue licences and regulate tariffs and tolls for extra-provincial bus operations ". . . on the like terms and conditions and in the like manner as if the extra-provincial bus undertaking were a local bus undertaking. . . ."[2]

Although all provinces and territories regulate bus carriers, there are differences in their manner of doing so. Eight of the provinces grant a bus company authority to operate a scheduled intercity service only if the applicant is able to prove public convenience and necessity. A public hearing is held if there are any objections to the proposed service. New Brunswick and Prince Edward Island removed this requirement in 1987, and now have a reverse onus test — an application is denied only if it is proven that the application would be detrimental to the public interest. In every province and territory, changing or abandoning a service requires approval by the provincial/territorial regulator.

Also in every province and territory, bus companies must file fares and obtain approval for them from the provincial/territorial regulatory authority. In Alberta, Saskatchewan, Manitoba and Newfoundland, only maximum fare levels require approval. All provinces and territories allow for public hearings to handle objections to fare increases. At the time of writing this report, the Maritime provinces were engaged in discussions that may lead to a common regulatory regime for intercity bus operations in New Brunswick, Nova Scotia and Prince Edward Island. It is expected that any common regime would be at least as open to competitive services as the relatively liberal regulation in New Brunswick and Prince Edward Island.

Charter services require separate licences in seven provinces. The reverse onus test applies to charter services in Alberta, New Brunswick and Prince Edward Island.

A number of scheduled bus services link Canadian and U.S. centres. These services are regulated by the provinces under the delegation of federal responsibility for extra-provincial carriers. They are also subject to U.S. regulation. U.S. federal regulation, which applies to interstate and international services, and the regimes of several of the states, less strictly control introduction of new services, changes in service, and pricing, than Canadian regulation.

COMPETITION

Competition among bus carriers on the same routes is generally discouraged. While there are a few exceptions, the bus industry consists mostly of regulated intercity monopolies. Even overlapping routes, such as Greyhound's trans-Canada service and the provincial services of the Saskatchewan Transportation Company, do not usually compete for the same passengers.

The Effects of Regulation

CROSS SUBSIDIES

Cross subsidies help maintain service on low-volume routes. Regulation of fares and routes allows carriers to earn high returns on high-volume routes in exchange for an explicit or implicit commitment to provide service, below cost if necessary, on other routes. Our analysis, based on average costs and revenues for various route types, suggests that:

- The most lucrative express routes could make a profit equal to half of the average fully allocated costs including return on investment.
- Mixed services (where intercity passengers are carried, but stops are also made at small communities) and long-distance services are generally profitable.
- Some local routes that parallel express service between major urban centres recover less than 25 percent of their costs.

OTHER EFFECTS

Regulation has its drawbacks. Our analysis suggests that average intercity bus transportation costs are higher than they would be in a more open market, in part because of lower efficiency. As discussed earlier, the bus industry has been losing market share, and is highly concentrated and regionalized. A policy that provides greater room and stimulus for a more entrepreneurial approach offers the possibility of improving bus service where it has the greatest potential.

THE CASE FOR A COMPETITIVE BUS INDUSTRY

Would opening the bus industry to competition result in a healthier industry, lower fares and improved services for travellers?

The experience in the United States and the United Kingdom offers useful insights. The United States and United Kingdom started regulating their intercity bus industries more than 50 years ago, in 1935 and 1930, respectively, and substantially deregulated them half a century later within a span of 22 months.

THE U.S. EXPERIENCE

In 1982, the U.S. Congress substantially, but not totally, deregulated intercity bus services. Some states have followed suit.

The major carriers have experienced financial difficulty and reorganization. The general economic malaise in the U.S. intercity bus industry was evident before 1982. The cost reduction achieved through franchising, renegotiating wage contracts, changing work rules, and eliminating unprofitable routes (which was possible because of regulatory reform) was not enough to stop the downward trend.

A major development after regulatory reform in the United States was the Greyhound-Trailways merger. Greyhound in the United States (which does not have a corporate relationship with Greyhound

in Canada) now controls 85 percent of the revenues generated by the major interstate bus companies. It provides the only public intercity transportation in 9,000 of the approximately 9,500 markets it serves.

The Greyhound-Trailways merger has resulted in service to rural communities that operates like the airlines' hub-and-spoke system. Small carriers affiliated with Greyhound use vans to provide service in areas where demand is insufficient to warrant using full-size buses. These so-called "feeder lines," which are linked to communities served directly by Greyhound, are operated by independent entrepreneurs who act as agents for Greyhound and receive a portion of the fare.

There is no question that there has been reduction in the availability of intercity bus service to small communities by the major bus companies; but much of this would have occurred in any event. Bus ridership, routes and service points were decreasing prior to regulatory reform.

THE U.K. EXPERIENCE

In the United Kingdom, regulatory reform was more extensive than in the United States. British intercity bus travellers have benefited, on average, from lower fares and improvements in the quality of service.

One of the effects of deregulation was reorganization and concentration within the express-bus sector. Six major private companies combined to compete with the publicly owned National Express, but failed. Within four years of regulatory reform, National Express, which was privatized in 1987, had become, once more, a monopoly supplier on many routes where private operators had initially offered new service. While National Express has recaptured the market on most routes, the threat of new companies entering the market appears to have kept fares from rising.

As in the United States, there was some reduction in lower-volume bus services after regulatory reform. Discontinuing intercity services, however, appears to have denied few people access to adequate intercity transportation.[3] Local authorities have provided subsidies to prevent loss of the services that link rural areas and small communities to larger urban centres. These services have, in general, been operated by private-sector bus companies and have achieved cost reductions.

COMPETITION AND LOWER FARES

Our research indicates that there would be advantages to travellers if the Canadian bus industry faced more competition. In a more open market, carriers would rationalize services and trim costs or lose market share on profitable routes to lower-cost competitors. Easier market entry would invite innovative services that could reverse, or at least slow down, the current decline in bus ridership.

Competition or potential competition on higher-volume routes should lead to lower fares. Because carriers would be deprived of exclusive rights, fares for express services, even between cities of moderate size, should fall. International experience supports this conclusion, as do the results for one of the few routes in Canada where competition exists. Greyhound currently competes in Alberta with Red Arrow's luxury service between Calgary and Edmonton and between Edmonton and Fort McMurray. Fares on these routes are lower than on similar routes.

On short low-volume routes where fares currently fall well below costs, and where competition is unlikely, fares would be expected to rise after removal of regulation. This would contribute to keeping some of the routes viable.

INNOVATION

Relaxed economic regulation would encourage innovation and entry of new operators into some markets, and more carriers in a market should increase service choice. Intermodal connections and

innovative management techniques would be encouraged by a more competitive environment. Mini-bus operations and a variety of part-time ventures offering scheduled service would replace inefficient full-sized coach services to some smaller communities.

Large carriers would not necessarily force smaller operators out of business. Our studies indicate that large carriers do not always have the lowest operating costs. In fact, the costs per unit of service of some of the small and medium-sized carriers were among the lowest of those we studied. Some small carriers operate profitable rural services in markets that larger regional carriers have chosen not to serve.

Therefore, we **recommend** that:

13.1 The *Motor Vehicle Transport Act, 1987* and relevant provincial and territorial legislation be amended to substantially relax the economic regulation of buses to:

(a) reduce the restrictions for entry to "fit, willing and able" criteria;

(b) require that route abandonments be subject only to adequate public notice;

(c) require only the publication of schedules and fares; and

(d) ensure that carriers be subject to the *Competition Act*.

Our recommendation is addressed both to the federal government, regarding extra-provincial bus carriers, and to provincial/territorial governments, regarding remaining carriers. We note that extra-provincial carriers currently account for a large share of total passengers carried, and that other carriers could opt for extra-provincial status by extending their operations beyond a single province or territory. Thus, federal action would have the effect of deregulating most of the industry. To implement the recommendation, the federal

government could withdraw its delegation of powers to the provinces/territories, or it could negotiate new agreements whereby provincial/territorial regulatory boards continue to enforce a modified motor vehicle transportation act with which we hope provincial/territorial regulatory regimes would be in harmony. We prefer the solution that creates the simplest administrative procedures for the carriers.

Competition Legislation and Enforcement

The success of relaxing economic regulation of intercity busing will depend on competition developing in the present regional monopoly markets. Such competition may come from large bus operators expanding into each other's traditional markets. We expect that charter carriers and small local operators that presently connect with the large monopoly carriers may also prove to be significant long-term competitors.

Potential competitors must be confident that federal competition legislation will ensure them a fair opportunity to compete and protect them from monopoly practices. The present *Competition Act* is a substantial advance over its predecessor, but the federal government should assure itself that the Act provides sufficient response and redress procedures to encourage active and effective competition in a newly deregulated bus industry.

We understand that protection for the small carriers that extend operations into the routes and terminals dominated by larger carriers would fall within the "abuse of dominant position" and the "refusal to deal" provisions of the Act.

We recognize also that competition policy applies to other sectors of the economy as well as transportation, and that the federal government must consider a range of factors, including jurisdiction, that we are unable to assess. Nevertheless, if Canadian travellers are to gain the full benefits of relaxed economic regulation, potential entrants into transportation markets must not be discouraged by fears of monopoly practices on the part of well-established carriers.

Therefore, we **recommend** that:

13.2 The federal government review the *Competition Act* and related policy and, if required, strengthen the powers needed to prevent anti-competitive practices in the intercity bus industry.

Service to Small Communities: The Transition

We are concerned about the impact of regulatory reform on services to small, rural communities. Some communities will enjoy reduced prices and better service because bus companies will use more suitable equipment for the market and reduce their costs. In less populated regions, smaller and older buses and part-time operators with mini-vans will enter the bus business, as is common in Newfoundland.

Fares for shorter rural trips could rise with reduced regulation. Some rural routes would survive, but with reduced frequency. Some communities would no longer be served by major carriers with full-size coaches. Others could lose scheduled service if there is very low demand for bus travel.

We believe that, after a period of adjustment, small communities that provide a regular travel market will be served. Experience and our studies indicate that bus operations can be viable in quite small markets. Regulatory reform frees the market and allows each carrier to choose to operate any route or type of service based on its commercial interests. The result is that services appropriate to the size of the market emerge.

We believe that bus travellers on profitable routes should not have to subsidize travellers on unprofitable routes. Bus riders on profitable rural and intercity routes are often those who cannot afford any other mode of travel. These bus riders should not pay extra to provide transportation on unprofitable routes.

We recognize that transition provisions may be required so that bus service in some areas is not lost while the industry adjusts.

Therefore, we **recommend** that:

13.3 If necessary to avoid steep increases in bus fares on particular routes following the relaxation of economic regulation of the intercity bus industry, transition subsidies be provided on a declining basis not to exceed 10 years and then terminated, with such subsidies being provided on a competitive tender basis to the carrier that can provide a safe service at the lowest cost, and being paid for by taxpayers in those jurisdictions that wish to maintain the service.

In recommending reduced regulation of market entry and exit, we considered a gradual transition to an open market that would allow carriers time to reorganize and reduce costs.

We have decided, however, not to recommend such a transition period. Our reasons are as follows:

- The legislative amendment process will take a substantial period of time, and there will be additional delays before the new provisions come into force.
- One change is sufficient. Carriers and travellers should not have to adapt to a transition regime, only to change again when the transition period is over.
- Some parties may be tempted to manipulate a transition regime to position themselves for a competitive advantage later. A transition period could foster anti-competitive practices.

The bus is the lowest cost way of transporting Canadians to where they want to go. With deregulation of the intercity passenger bus industry, bus travel would become more efficient and even less costly.

ENDNOTES

1. Russell's Guides, Inc., *Official Canadian Bus Guide*, May–June 1991.

2. The *Motor Vehicle Transport Act, 1987* provides authority for the federal government to exempt a bus carrier from falling under provincial jurisdiction. Such exemption means that the carrier is regulated under the provisions of Part IV of the *National Transportation Act, 1987* and falls under the jurisdiction of the National Transportation Agency. (The corresponding provision in the earlier Act was invoked only once, as a consequence of a dispute between CN Roadcruiser and the Board of Commissioners of Public Utilities of Newfoundland. The Board had restricted the tariff of the federally owned replacement for Newfoundland's passenger rail service.)

3. European Conference of Ministers of Transport, *Regulatory Reforms in the Transport Sector*, Paris, 1988, p. 13.

CHAPTER 14

APPLYING THE PRINCIPLES TO FERRIES

INTRODUCTION

Canada has the longest coastline of any country in the world and has major island groupings in temperate climatic zones — including three on which provincial capitals are located. Inland, the St. Lawrence River and the Great Lakes are two of the country's and the world's major waterways. In the past, when it was easier to travel by water than overland, towns developed along Canada's waterways. Today, water transportation continues to be an important mode of travel for many Canadians.

Ferries provide a variety of passenger transportation services to many Canadians. The operators providing these services range from small to large; some are privately owned and some are publicly owned. For example, the British Columbia Ferry Corporation (BC Ferries), with 38 ships and 24 routes serving 43 terminals, is one of the world's largest ferry services.[1] In contrast, river-crossing ferry services for short distances between two points are provided in many locations by small operations. The variations in ferry services across Canada are as great as the variations in Canada's geography and population distribution.

Taxpayers provide substantial support to ferry services. Measured in costs per passenger-kilometre, ferries are the second most heavily subsidized means of passenger transportation, after rail. Since Confederation 125 years ago, federal and provincial taxpayers in Canada have spent large amounts of money on ferry services. The reasons for these expenditures include meeting constitutional obligations (for example, the provision of ferry service to British Columbia, Prince Edward Island and Newfoundland) and encouraging social or economic development, particularly in Atlantic Canada.

The major intercity ferry operations in Canada are found on the west and east coasts. Most of the ferry routes on the west coast are operated by BC Ferries, a provincial Crown corporation. Marine Atlantic Inc., a federal Crown corporation, provides the majority of the ferry services on the east coast. Other larger ferry services include: the seasonal service between Prince Edward Island and Nova Scotia, operated by the privately owned Northumberland Ferries Ltd.; the St. Lawrence River ferries, operated by the Quebec government; and the Great Lakes service, operated by the Ontario government.

Passenger volume on these ferries varies a great deal. In 1990, BC Ferries carried nearly 20 million passengers,[2] Marine Atlantic carried almost 2.5 million, and Northumberland Ferries approximately 530,000.[3] The next two largest services are: the Matane to Godbout to Baie-Comeau route of the Société des traversiers du Québec, which carried approximately 270,000 passengers in 1990;[4] and the Ontario Northland Transportation Commission's Tobermory to South Baymouth service, which carried over 200,000 passengers in the same year.[5]

Overall, the use of ferry services in Canada has increased in recent years. Most of the increase has occurred on the west coast, where BC Ferries carried a total of 18 million passengers in 1986 and 20 million in 1990. On the east coast, Marine Atlantic's total ridership grew slightly, from 2.3 million passengers in 1986 to 2.5 million in 1990.[6]

There are many different types of ferry services. The following are a few examples:

- The MV *Joey and Clara Smallwood*, a large ferry equipped with a modern navigation system, travels 519 kilometres between North Sydney, Nova Scotia, and Argentia, Newfoundland, twice a week. In 1991, this ferry carried about 15,000 vehicles and 41,000 passengers during its late-June to early-September operating season.

- A high-speed passenger-only ferry service (catamarans travelling at speeds of up to 37 knots) operates in the Georgia Strait between downtown Victoria and downtown Vancouver. The vessels used on this new service can carry up to 312 passengers.
- A privately owned and operated ferry service crosses the Ottawa River between Cumberland, Ontario, and Masson, Quebec, a distance of less than a kilometre. The ferries in this service can carry 13 cars, operate 24 hours a day year-round, with at least 2 ferries in the winter and up to 5 in the summer, and offer 5-minute service during the day and 10-minute service at night.

Many of the shorter ferry services could be described as intercity. These include such routes as Cumberland to Masson as well as the Quebec City to Lévis and Halifax to Dartmouth routes. As well, there are services on both coasts that connect small, remote communities, most of which are completely dependent on these ferries for both freight and passenger service. For the purposes of this report, however, we have focussed on longer intercity trips that are more comparable with intercity trips in other modes.

What Canadians Told Us

Interveners from the Atlantic region told us that their ferry operations provide essential passenger and cargo services. They argued for increased federal presence and funding to establish more year-round ferry services in the Atlantic provinces. They pointed out that ferry service is an important tool for economic development, both in the role it plays in the tourism industry and as a means of moving freight.

Several interveners urged us to consider ferry service as an integral part of the transportation system in the Atlantic region, rather than as a method for point-to-point travel. They said that ferry services are an extension of the highway and railway systems and recommended further integration of the various modes to enhance the ferry services.

Interveners from British Columbia also told us how important ferry services are to them. They pointed to the role that ferry services could play in a rapid-transit system connecting Victoria and Vancouver. They suggested these cities build rapid-transit systems that link with ferry docks to provide an inexpensive and environmentally safe method of moving large numbers of people (presumably without their cars). Some also suggested establishing local bus service to the ferry terminals because such services would have lower fares than those now charged for special bus service to the terminals.

Interveners emphasized the importance of ferries to tourism and asked for increased service between points in Canada and the United States. Some stressed that ferries should continue to serve remote communities even though such services require subsidies. Several interveners called for an increase in federal funding for British Columbia's ferry services to match that received by eastern Canada. In British Columbia, as in the Atlantic provinces, some suggested that ferry services should be considered as an extension of the highway system.

Constitutional Obligations

Some ferry services are part of early constitutional arrangements. Each of the Terms of Union signed between Canada and British Columbia, Prince Edward Island and Newfoundland included an obligation on the part of the federal government to provide a ferry link to the mainland.[7] In a few cases, the federal government has also agreed to subsidize alternative ferry routes to those set out in the Terms of Union, although no federal constitutional obligation exists for these. The alternative services include the seasonal service between Caribou, Nova Scotia, and Wood Islands, Prince Edward Island, operated by Northumberland Ferries Limited.

Courts and governments have reviewed constitutional obligations for modern transportation. When the federal and provincial governments negotiated these Terms of Union, ferry services played a different

role in the lives of Canadians than they do today. Steamships provided ferry services, carried mail as well as passengers, and linked communities in a time of few roads and no air service. Over the years, the function and technology of ferry services have changed considerably. Today, ferries use many different technologies, and passengers can often choose other modes of transportation for many ferry routes. As a result, courts and governments have attempted to interpret constitutional agreements in a modern context.

BRITISH COLUMBIA

The original federal-provincial agreement was intended primarily to ensure mail service. Under Term 4 of the 1871 *British Columbia Terms of Union*, Canada undertook to "provide an efficient mail service, fortnightly, by steam communication between Victoria and San Francisco, and twice a week between Victoria and Olympia [the capital of neighbouring Washington state]; the vessels to be adapted for the conveyance of freight and passengers." To fulfil its obligations, the federal government subsidized a private steamship operator under a contractual arrangement.

In 1925, the federal and provincial governments agreed that the service between Victoria and San Francisco no longer required a subsidy, and that the British Columbia government should use the subsidy to improve mail service within the province.

In 1977, the federal and British Columbia governments entered into a new arrangement for ferry subsidies.[8] The federal government agreed to pay a block grant of $8 million per year to the province to support ferry service. With annual adjustments to cover inflation, the estimated payment in 1992-93 is $19.9 million.[9] In return for the payment of this subsidy, Canada was "relieved of any and all obligations for the provision of subsidy or other financial assistance over and above the subsidy provided for in this Agreement."[10]

The province is responsible for how the federal grant is allocated and has agreed to "assure reasonable and adequate service and

appropriate supervision thereof" in British Columbia coastal waters.[11] The province is also obliged under the agreement to "place appropriate passenger vessels in service . . . to give effective links where required on the coast between communities and principal water and air services."[12]

While the current agreement satisfies the requirements of the Terms of Union, the constitutional obligation to provide the service remains that of the federal government rather than the province.

PRINCE EDWARD ISLAND AND NEWFOUNDLAND

The federal agreements with Prince Edward Island and Newfoundland ensured specific ferry routes. In 1873, Prince Edward Island joined Confederation with the assurance that the Dominion government would "assume and defray all charges" relating to a list of services, including what has become the ferry service connecting Prince Edward Island and New Brunswick.[13]

Term 32(1) of the 1949 *Newfoundland Act* provided that "Canada will maintain in accordance with the traffic offering a freight and passenger steamship service between North Sydney and Port aux Basques, which, on completion of a motor highway between Corner Brook and Port aux Basques, will include suitable provision for the carriage of motor vehicles."[14]

Marine Atlantic operates the two ferry services that fulfil Canada's constitutional obligations to these provinces. One service operates between Cape Tormentine, New Brunswick, and Borden, Prince Edward Island; the other, between North Sydney, Nova Scotia, and Port aux Basques, Newfoundland. Terms 32(2) and 32(3) of the *Newfoundland Act* limit the rates that can be charged for traffic to Newfoundland.[15] This is the only rate limitation for any constitutionally required ferry service.

The possibility of fulfilling the constitutional ferry obligation to Prince Edward Island by replacing the ferry service operated by Marine

Atlantic with a fixed link has been under consideration for several years. In the spring of 1992, in response to a federal government invitation, three developers submitted proposals to construct and operate for 35 years a fixed link between New Brunswick and Prince Edward Island. At the time of writing, all of these bids had been rejected as not complying with the federal government's requirements, and discussions were ongoing. The invitation for proposals provided that at the end of the 35-year period, the structure would become the property of the federal government and would be operated as an interprovincial bridge. During the intervening period, the federal government would pay the operator a predetermined amount that would be similar to the amount that the ferry subsidy at existing levels would have been, plus other avoidable costs of the service. Had our principles been adopted, however, the ferry subsidy would have been substantially lower and the proposed fixed link would only meet our investment criteria with a higher bridge toll.

Marine Atlantic and BC Ferries — Costs and Revenues

The two largest ferry companies in Canada receive different levels of government subsidies.[16]

Marine Atlantic Inc.'s revenues totalled nearly $218 million in 1990. Of this amount, $147 million[17] came from federal taxpayers and the rest, $71 million, came from ferry passengers and freight.

The commercial portion ($71 million) of the total revenues came from fares and charges for other on-ship services, such as restaurants, and vessel and miscellaneous services. Charges for the direct movement of passengers and vehicles accounted for almost 78 percent of commercial earnings.

Of the federal payment ($147 million), $96 million was for direct operating expenses (excluding any allocations for administrative or capital costs). Approximately 60 percent of this latter amount was for the two constitutionally required services ($22.7 million for the Prince Edward Island service and $36 million for the Newfoundland service).

BC Ferries' revenues totalled $242 million in 1990. Of this amount, $229 million came from commercial revenues, including tolls for passengers and vehicles, and catering and other income, and $13 million came from British Columbia taxpayers as an operating subsidy.[18] Passenger-transportation-related revenues accounted for almost 81 percent of commercial revenues.

In addition to operating revenues, various forms of capital assistance are provided by federal taxpayers to Marine Atlantic and by British Columbia taxpayers to BC Ferries.

There are large differences in average costs for the two ferry companies. Average passenger costs for Marine Atlantic are approximately double those of BC Ferries. Average passenger costs, however, for BC Ferries' services, excluding the services between Vancouver Island and the mainland, are similar to those for Marine Atlantic's operations. Some of the reasons for the large differences in average costs are as follows:

- BC Ferries has a more even distribution of annual traffic than does Marine Atlantic. Peak season activity represents about 40 percent of total annual passenger traffic for Marine Atlantic, but only about 22 percent for BC Ferries.[19] Marine Atlantic vessels are constructed to handle this peak season traffic and therefore have unused capacity in the off-season. In contrast, more even year-round operation allows BC Ferries to make fuller use of its vessels.
- Marine Atlantic has higher costs because its vessels must be ice-strengthened for winter conditions. Ice strengthening increases initial capital costs and, as a result of the added vessel weight, operating costs increase as well. BC Ferries, however, operates primarily in the southern part of the province, where weather conditions are less severe. This results in fewer capital-intensive shore facilities, lower vessel operating expenses and fewer cancellations because of bad weather.

- Wage rates do not contribute to Marine Atlantic's higher operating costs. Labour costs are 44 percent of Marine Atlantic's total operating costs, and 55 percent of BC Ferries'. In addition, BC Ferries' wages are, on average, 11 percent higher than those of Marine Atlantic. Administrative costs do not differ substantially between the two operators — they represent 11.6 percent of Marine Atlantic's total costs, and 14.3 percent of BC Ferries'.

The Pricing of Ferry Services

In Chapter 4, we recommended that travellers pay the full costs of the transportation services they use and that carriers pay the full cost of the terminals, links and traffic control services they use. Thus, passengers (and freight shippers) should pay the full costs of the ferry services that they use, and operators of ferry services should charge travellers the full costs of providing their service, including the costs of the provision of terminals, harbour fixtures and navigational aids.

Any additional costs imposed on ferry operators because of government requirements (such as requirements to purchase local or Canadian manufactured goods or equipment or to have maintenance or refitting of vessels carried out at specific locations) should be clearly identified. These costs should be funded by the government concerned, out of the appropriate industrial or regional development budget, and should not be included as part of the costs to be recovered through fares.

In addition, in Chapter 4 we recommended that terminals, links and traffic control services be individually priced on a terminal-by-terminal, link-by-link and service-by-service basis. The nature of a ferry service allows each service or link to be priced individually.

We realize that the goal of full payment of costs cannot be achieved immediately, but, from this point on, governments should use this goal when setting policy, making transportation investments, and looking at future programs and projects. Avoidance or minimization

of subsidies on existing services results in a more favourable environment for introducing innovative services. The new high-speed ferry service introduced early this year between Victoria and Vancouver is an example of what can happen in a free market. It competes with a BC Ferries' service that receives little or no subsidy.

We recognize that, for some routes, ferry rates would have to increase considerably (more than 10 percent annually) to achieve financial self-sufficiency within the next 10 years. In other cases, ferry rates are already at, or near, cost-recovery levels.

Table 14-1 compares the rates charged on routes of similar length for Marine Atlantic and BC Ferries. The figures show that:

- Marine Atlantic's one-way fare per kilometre for the shortest route shown is higher than for a similar length route operated by BC Ferries;
- one-way fares per kilometre on the longest routes differ substantially on the east and west coasts; and
- fares on medium-length routes also vary. On the east coast, the Yarmouth to Bar Harbor route is almost the same length as the North Sydney to Port aux Basques route, but its one-way fare per kilometre for a passenger is nearly three times as much in the peak operating season. The fare differential is less in the case of the one-way fare for a car and driver. Both routes are operated by Marine Atlantic. BC Ferries' fare for a comparable-length service from Prince Rupert to Skidegate is similar to that for Marine Atlantic's North Sydney to Port aux Basques route for a passenger, but nearly one-third more for a car and driver.

In the transition to ferry services where travellers pay the full costs of the services they use, ferry operators will have to raise rates and/or reduce costs on most routes. We realize that such adjustments will take time.

Table 14-1

SELECTED FERRY RATE COMPARISONS, MARINE ATLANTIC (M.A.) AND BC FERRIES (B.C.), 1992

Service	Crossing distance (km)	One-way fare auto and driver ($)	Fare/km auto and driver ($)	One-way fare passenger ($)	Fare/km passenger ($)
Cape Tormentine to Borden (M.A.)	15	11.75	0.78	3.25	0.22
Horseshoe Bay to Langdale (B.C.)	18	12.75	0.71	2.75	0.15
North Sydney to Port aux Basques (M.A.)	178	66.00	0.37	16.00	0.09
Yarmouth to Bar Harbor (M.A.)	185	120.00[a]	0.65	45.00[a]	0.24
Skidegate to Prince Rupert (B.C.)	172	82.00	0.48	17.00	0.10
North Sydney to Argentia (M.A.)	519	145.00	0.28	45.00	0.09
Bear Cove to Bella Bella to Prince Rupert (B.C.)	507	260.00[a]	0.51	85.00[a]	0.17

Sources: **BC Ferries and Marine Atlantic Inc.**

a. **Peak-season rate.**

Note: **Peak-season fares shown where applicable.**

Therefore, we **recommend** that:

14.1 Governments, in eliminating the capital and operating subsidies on individual ferry routes (including, where possible, the routes provided under the Constitution), establish transitional periods not to exceed 10 years in those cases where moving to immediate cost recovery would result in steep annual fare increases.

We also recognize the constitutional obligation of the federal government to ensure that adequate service continues to Prince Edward Island and to Port aux Basques, Newfoundland, and the constitutional limit on rates for the Newfoundland service. Wherever such routes require subsidies to cover costs, we believe that governments should ask the following:

- Are the fares appropriate?
- Is the operation furnishing services of sufficient benefit to justify continuation in its current form?
- Are there adequate pressures to achieve cost savings?

It may be possible, with increases in rates and cost reduction, that a constitutional service can be financially viable. Under those circumstances we think that is what should happen. We also recognize that, even with the most cost-effective service, and with rates that maximize revenues (subject to any constitutional fare constraint), traffic volumes may be such that a deficit might still be the case and, given the constitutional obligation, the federal government would have to continue to meet it.

In reviewing the options for moving toward elimination of the subsidy, the federal government should consider whether contracting out the provision of service, with fares ultimately to be set by the operator but with the transitional subsidy, would be cost effective. In this case, the tender could also provide for the operation of government-owned vessels for several years.

Keeping the above in mind, we **recommend** that:

14.2 In the case of those ferry services provided as a result of constitutional obligations, the governments concerned reassess arrangements and implement one of the following options:

(a) phasing down the capital and operating subsidy over 10 years to the minimum level consistent with continued operation of the service and with any other constitutional constraints; or

(b) offering a federal grant to the affected province in lieu of the subsidy. Such a grant might be based on the least-cost method of meeting the constitutional commitment. This would allow the province to decide if subsidizing ferry service was the best use of the funds.

To encourage an appropriate balance between fare increases and cost reduction efforts, we suggest that users of subsidized ferry services be given opportunities to advise the ferry operator on costs and fares. In providing their advice, we ask them to recognize the subsidy constraints faced by the operator and the need for procedures to achieve full cost recovery, or reduction or elimination of services.

In addition, we **recommend** that:

14.3 Where a ferry service provided as a result of a constitutional obligation is commercially non-viable, taxpayers provide the subsidy — not users of other ferry services through cross subsidies.

Those responsible for making and applying the rules and spending the taxpayers' money should be accountable for their actions. If government decides to continue subsidizing a ferry service, for whatever reason (for example, regional development), the decisions should be transparent, that is, visible and up-front.

Therefore, we **recommend** that:

14.4 The amount of, and reason for, any subsidy for a ferry service be clearly reported.

ENDNOTES

1. British Columbia Ferry Corporation, *Annual Report 1990-1991*, p. 3.

2. Two of BC Ferries' most highly used routes carried more passengers than did the other systems combined. These are the Tsawwassen to Swartz Bay and the Horseshoe Bay to Nanaimo routes, which carried approximately 5.9 million and 3.8 million passengers, respectively, in 1990.

3. Geoplan Consultants Inc., *Canadian Ferry Costs and Industry Analysis*, a report prepared for the Royal Commission on National Passenger Transportation, RR-09, December 1991.

4. Société des traversiers du Québec, *Rapport d'activités, 1990-1991*, Table 1.

5. Ontario Northland Transportation Commission, Planning and Development Office.

6. Geoplan Consultants Inc., Tables 3.1, 4.1 and A.1 to A.5.

7. For a more detailed discussion, see Patrick J. Monahan, "Transportation Obligations and the Canadian Constitution," in Volume 3 of this report.

8. See Transport Canada, "Subsidy Agreement between the Government of Canada and the Government of the Province of British Columbia," April 18, 1977.

9. Transport Canada, *1992–93 Estimates, Part III, Expenditure Plan* (Ottawa: Supply and Services Canada), pp. 3-30.

10. Transport Canada, "Subsidy Agreement," section 5.

11. Ibid., section 4(2).

12. Ibid., section 4(3).

13. The relevant term in the *Prince Edward Island Terms of Union* provided for: "Efficient Steam Service for the conveyance of mails and passengers, to be established and maintained between the Island and the mainland of the Dominion, Winter and Summer, thus placing the Island in continuous communication with the Intercolonial Railway and the railway system of the Dominion."

14. *Newfoundland Act*, R.S.C. 1985, Appendix II, no. 32.

15. The wording of these terms is as follows:

    32(2) For the purpose of railway rate regulation the Island of Newfoundland will be included in the Maritime region of Canada, and through-traffic moving between North Sydney and Port aux Basques will be treated as all-rail traffic.

    32(3) All legislation of the Parliament of Canada providing for special rates on traffic moving within, into, or out of, the Maritime region will, as far as appropriate, be made applicable to the Island of Newfoundland.

16. This section is based on the report by Geoplan Consultants Inc. entitled *Canadian Ferry Costs and Industry Analysis*.

17. The total of $147 million includes $26 million that is shown as depreciation. The federal government funds Marine Atlantic's capital requirements directly. Depreciation is shown to reflect a capital cost on the assumption that depreciation, in the long run, will equal capital advances.

18. The financial assistance provided to BC Ferries by British Columbia taxpayers is applied initially to cover any operating loss and, secondly, to a capital subsidy account. From 1989 to 1991 the provincial government provided $51 million annually. Since 1991, the annual subsidy amount has been negotiated by the province and BC Ferries, and has been reduced somewhat for 1992.

19. Peak season activity is defined as the volume of passenger auto equivalents moved in July and August. A passenger auto equivalent is used to measure deck space utilization to allocate costs to freight and passenger movements.

CHAPTER 15

INTEGRATING THE MODES

Introduction

As part of our mandate, the Government of Canada asked us to inquire into and report upon a national intercity passenger transportation system that would be integrated. In our Interim Report we noted that, "For some Canadians, the ideal passenger transportation system is one that integrates different modes of transportation. . . . Many Canadians would like to choose between a variety of modes of travel for a trip and be able to move between these modes easily."

Canadians spoke to us about three types of intermodal connections that they consider desirable:

- multimodal terminals — that is, terminals shared by several modes;
- improved linkages from terminals to downtown or home, including baggage handling; and
- integrated reservation and ticketing systems, including multimodal travel packages.

Integration Today

In Canada, with rare exceptions, the only form of intercity transportation that takes people and their luggage directly from home to destination is the car. Rail, airplane, bus — all rely on each other or on the car to deliver most travellers to their destinations. Virtually all the terminals of the public modes are designed around the car.

There are many other reasons for the limited integration of public intercity passenger transportation. To some extent, the problems of intermodal passenger transportation result from governments having

introduced safety and economic regulations along modal lines. While such regulations make administrative sense for technologies and markets, they have tended to keep the modes apart. Also, integration is held back because carrier managers do not want to be dependent on other modes whose operations they may not fully understand or with which they are in competition.

We believe that intermodal connections for public passenger transportation can be improved. We note the way freight is transported in Canada, where we see an industry with increased integration and competition among intermodal services. Rather than operating in isolation, the modes that handle freight cooperate extensively to offer shippers convenient and speedy service. The smooth flow of goods depends on a network with good connections between modes, and on sophisticated management, including computerized capacity scheduling.

So what is causing the lack of integration in the passenger transportation system? In our study of intermodal transportation, we found some good examples of integration, some examples where the missing link between modes is simply lack of information on schedules and tickets, and others where the lack of coordination is not logical. We examined these situations and others, focussing our attention on those aspects of passenger transportation that might inhibit intermodal cooperation: regulatory restraints, industry reluctance, lack of government cooperation or planning, and gaps in transportation infrastructure (such as rail tracks that run right by airports but do not connect with terminals).

To be successful, intermodal connections require cooperation among carriers. Two operators of different modes sharing a terminal, but operating independently and with no effort to coordinate schedules or ticketing, are not achieving intermodality. A network of several modes with a common reservations system, common ticketing, coordinated schedules and effective transfers of people and baggage between modes may integrate successfully without sharing a terminal.

Carriers tend to favour intermodal connections when the modes complement one another (intercity buses connecting with urban transit, for example) but dislike intermodal connections when the modes compete with each other (intercity buses competing with intercity rail, for example).

Canada's Busiest Intercity Passenger Service is Intermodal

The 44-km BC Ferries service between Victoria (Swartz Bay) and Vancouver (Tsawwassen) carries six million passengers annually. Many of these are car travellers while others make the full trip by bus. But others find it convenient to travel by car, then ferry and then bus. The bus service also connects (via a suburban hotel) with a shuttle service to Vancouver airport.

Bus tickets may be purchased aboard the ferries, and foot passengers who indicate their intention to continue by bus may deposit their luggage as they enter the ferry terminal. Their baggage is then transported to the bus by ferry staff for delivery at the passenger's destination bus terminal.

Airports — Most Integration Occurs Here

In Canada, the most common form of intermodal integration is ground transportation at airports. Airports are usually located far from central business districts and urban transit systems. Making airports more accessible to passengers is thus a challenge. At Transport Canada airports, the rights to provide ground transportation are sold through competitive tender.

Private cars account for the largest proportion (65 percent)[1] of airport passenger arrivals and departures. Some travellers are dropped off and picked up; others park at the airport. Five percent of travellers rent cars at their destination airport.

Taxis and limousines provide convenient service to and from airports, but are the most expensive mode of public ground transportation. Nationally, they account for 15 percent of arrivals and departures. In general, taxi fares are regulated and taxis either pay the airport for the right to pick up passengers, or Transport Canada charges the local government for the costs to the airports associated with taxi operations. As an example of the former, Transport Canada charges over $4,000 annually per taxi for an airport taxi permit at Toronto's Lester B. Pearson International Airport. Due to the restricted number of permits, each has a market value in excess of $40,000. At Calgary, however, the city pays the airport for all taxi-related costs, which are estimated to be about $60 per taxi per year and any Calgary taxi may operate to and from the airport.

Taxis with municipal licenses may take passengers to airports; Transport Canada licenses taxis to pick up passengers from the airports. In cases where not having both licences causes taxis to make the return trip empty, the cost of taxi service is increased. Some hotels provide guests with courtesy vehicle service. These vehicles, which carry about 5 percent of passengers, pay airport licence fees equal to about one third of those charged to taxis.

Municipal buses providing links to central business districts are the cheapest form of ground transportation at airports. Airport employees are the predominant users of the local bus services (at Pearson, about a fifth of them do so). These buses, which carry a very small percentage of air passengers, are part of the municipal transit system and do not generally pay airport fees, nor do they handle baggage. Express bus services, which are licensed by Transport Canada, are generally used by passengers (about 5 percent), are more expensive and provide baggage service.

Out-of-town ground services, which include door-to-door vans and intercity buses, carry about 5 percent of airport passengers. Provincial boards regulate entry and the level of fares for these services. A Transport Canada permit, for which a concession fee may be charged, is also necessary.

Exclusive Concessions at Transport Canada Airports Reduce Competition

In 1991, Greyhound Lines of Canada applied for a permit to serve Calgary airport, which is owned and managed by Transport Canada. Their application stated that the company could provide airport passengers with convenient connections, via Greyhound's other routes, to neighbouring communities.

Transport Canada rejected the Greyhound proposal, deciding that the existing shuttle service to downtown Calgary, provided by a local carrier, was satisfactory.

Airport-to-rail intermodal connections do not exist, except to a limited extent at Montreal's Dorval airport, or via a bus link as in Toronto.

Many of these services suffer from a lack of visibility at airports, and information on schedules and fares is not always easy to find. Baggage handling and pre-boarding clearance are rare. Cash is often the only means of payment, and through ticketing is usually unavailable.

When we examined the charges for ground transportation at Transport Canada airports, we found that they are inconsistent with the department's cost-recovery policy for federal airports. Given their revenue objectives, it is logical that airport management favours private operators (which pay for concessions) over public buses (which do not). What seems inconsistent is that, at Pearson, while taxis without airport licences are charged a fee for a pre-arranged pickup, there is no charge to private cars for pickup and drop off of passengers. This situation is not exclusive to Pearson. At other airports, different means are used to charge for access by taxis and buses, but no fee is charged for access by private cars. Since urban buses pay no airport fees, they receive the lowest priority for platform accessibility.

Many Connections at Pearson Airport

About 42,000 passengers arrive at, or depart from, Toronto's Lester B. Pearson International Airport every day, using different modes of transportation:

Car: **Approximately 28,000 travellers use private vehicles. The airport provides 9,500 parking spaces supplemented by private off-site parking with shuttle-bus service.**

Toronto transit: **Three urban bus routes connect through the airport, each with two or three departures hourly, some linked to the subway system.**

Taxis, limousines, vans and intercity buses: **550 taxis and limousines and 14 door-to-door van services and intercity bus companies offer scheduled and non-scheduled service to more than 50 centres throughout southern Ontario.**

The public carriers serving communities beyond the Toronto metropolitan area are members of the Airport Ground Transportation Association, which coordinates the flow of the carriers and their passengers. The airport permits access to all public carriers who have the approval of the provincial or city regulatory authority, subject only to availability of space.

Rail: **Governments earlier concluded that rail, as a stand-alone system, would not be economically viable. They are once again studying a rail link as part of the regional (all modes) transportation network. Rail connections via the express bus are available.**

Leisure travel is an example of carriers cooperating to provide intermodal connections. In the leisure travel market, bimodal and even multimodal all-inclusive flight, cruise, bus and train packages are standard. Examples include air-rail excursions in the Windsor to Quebec City Corridor, air-rail-bus packages to the Rockies, and tours that include west-coast and Arctic cruises.

Leisure Travel and Intermodal Connections

- **Air Canada's Freedom Flyers promotion includes a seven-day Greyhound Lines of Canada pass.**
- **The Experience Canada coalition includes bus, rail and air carriers.**
- **Canadian Airlines International and VIA Rail offer fly-rail packages to foreign tourists.**
- **Canadian Airlines International and Brewster Transportation provide a fly-bus inclusive ticket price to Banff.**

International Comparisons

In other countries, intermodal connections often involve considerable government funding and/or regulation. National railway monopolies dominate intercity public passenger transportation in Europe. For example, in France, the government intervened to ensure that a Train à Grande Vitesse (TGV) rail connection was developed at Charles De Gaulle airport. In addition, European governments often do not allow bus services to compete with train services.

In Germany, Frankfurt airport has instituted a central baggage handling system to maintain control over intercarrier baggage transfers and to improve the convenience of the airport as a transfer point between air and rail. The airport's system allows convenient integration of the government-controlled airline with the government-controlled rail system.

Many foreign airports are connected to cities through rapid-rail transit. For example, the U.S. government funds the "Metro" in Washington, D.C., which provides express subway service to Washington's National Airport. About 15 percent of airport passengers use this transit system. A new transit line to the Atlanta, Georgia, airport is used by 10 percent of air travellers to Atlanta as well as by airport employees.

Barriers to Integration

It was clear to us that Canadians want more integration of transportation, and that the current passenger transportation connections among modes are often not well developed. Is poor integration simply the result of competition among commercial carriers? For example, carriers see the other modes as competitors rather than extensions of their service. For this reason, bus carriers do not want their passengers to have easy access to trains and therefore resist the use of a common terminal.

THE CAR

We concluded that there are many reasons for Canada's lack of an integrated passenger transportation system. For example, Canadians' extensive use of motor vehicles discourages public mode integration. If cars and taxis did not provide transportation to and from terminals, intercity operators would have to cooperate with local public transit to provide door-to-door service.

THE GOVERNMENT'S ROLE

Both the *National Transportation Act* of 1967 and the *National Transportation Act, 1987* called for free competition among the modes. The 1967 Act promoted competition between public modes to create an "economic, efficient and adequate transport system." The 1987 Act expanded competition from among the modes to within the modes and, at least for the air mode, lessened regulatory burdens and simplified regulatory procedures. The legislation does not encourage cooperation among carriers of different modes.

COMPETITION

Although market forces may not be sufficient to encourage integration among competitors, we note that where there are a number of carriers and regulation of access to the market has been relaxed, intermodal

connections improve. Historically, links to rail have been more frequent where there were competing bus lines. As further evidence, deregulation of domestic air transportation encouraged new entrants and prompted major air carriers to integrate their schedules with subsidiary and allied feeder air carriers.

The airlines that made submissions to us expressed an interest in extending this type of integration to surface modes. In addition, VIA Rail has consistently expressed interest in bus-rail terminals, believing they would result in a net gain in traffic for VIA Rail. While air carriers are interested in better surface connections, market-entry regulations — particularly those for intercity buses — make it difficult for new operators to provide such connections.

REGULATION

The tightly regulated intercity bus industry poses obstacles to integration. Provincial regulations have created intercity bus route monopolies. In addition, intercity bus companies have generally been opposed to convenient bus-rail terminals. They believe they would lose profitable passengers to rail and only pick up less profitable or unprofitable feeder traffic.

Restricted access of ground transportation to air terminals hinders intermodal connections and traffic growth. In general, airports limit such access in order to generate revenue from concession permit holders. We are concerned that the federal government's current airport revenue policy creates pressure to obtain income from permits, and does not encourage airports to create and expand a wide range of ground transportation. We hope that the new federal policy of turning the management of federal airports over to local authorities will have a positive effect. We expect that local managers may give more weight to their communities' needs, to passenger convenience and to encouraging growth in passenger volume.

At present, computer reservation systems are confined to two modes. VIA Rail subscribes to the airlines' computer reservation systems,

but bus companies do not because they find them too expensive. Greyhound has introduced an automatic central telephone system that offers not only information on its own schedules and fares but also information on other bus companies in the continental network. Expanding such information systems to include all modes would be a step toward an integrated passenger transportation system.

DISMANTLING THE BARRIERS

In Chapter 13, we recommend major regulatory reform of the inter-city bus industry to permit competition within that mode. The result of these new opportunities might be a market comprising intermodal chains of cooperating carriers. These chains would compete with each other, providing convenient origin-to-destination, single-ticket service.

For many travellers, modal integration means the ability to make easy interconnections among the modes. This encompasses through ticketing, flow-through baggage handling and minimizing of the number of interconnections.

Many told us that they find it incredible that, through the action of governments, Mirabel airport was located so far away from any city, and with so few means of public access. In addition, many large airports such as Pearson and Dorval are not connected to urban subway networks or to nearby rail lines.

While some of these past decisions may not have been good, it would be extremely expensive to make the desired corrections. Interconnection projects should be evaluated in accordance with our principles. Those responsible for assessment should recognize that terminals alone do not achieve intermodality, that connections among competing modes generally require intervention by governments, and that costs, including common costs, must be properly charged to the various users of the transportation system.

Multimodal terminals are an obvious way to encourage integration. We note, however, that land costs have been a major consideration in the location of bus terminals, and local governments usually participate in deciding the location of urban terminals. Passenger rail stations are generally located near urban transit connections and offer practical starting points for multimodal rail and bus terminals.

Direct government intervention, involving access to public terminals and possible funding of construction, might support more intermodal cooperation. We believe, however, that there are more cost-effective ways to advance modal integration. The role of government as mediator and coordinator, but not necessarily as banker, needs to be emphasized. We urge that a greater role be played by governments at the local level. Reform of regulatory restraints, location of terminals, integration of capacity and design with urban development and zoning functions, and selection of suitable urban terminal designs are issues for local resolution.

Recommendations: Moving Toward Integration

Under our principles, we favour opening all transportation markets to competition, including providing for non-discriminatory access to transportation terminals. We believe that applying our principles to passenger transportation would substantially increase the availability and convenience of intermodal travel.

ACCESS TO TERMINALS

While market forces alone are unlikely to cause the development of major intermodal terminals, we note that terminals built by government do not guarantee better intermodal services. Unless there are large cost-savings, dominant carriers resist sharing terminals with their competitors.

Government and Multimodal Transportation Planning

Mirabel, Quebec

Planners recommended that Montreal's international airport be located in Hudson Heights, Quebec. Highway access and commuter rail service to Montreal and Dorval airport were convenient, as were highway access and passenger rail service to Ottawa.

For a variety of reasons, however, the federal government built the airport in Mirabel, north of the Ottawa River. Builders included a commuter rail station within the airport terminal. Governments believed that a rapid-transit connection would counter the inconvenience of the airport location and further stimulate economic development of the region. The transit system, however, was never built. The commuter rail station is not used and now provides parking for airport employees.

Calgary, Alberta

In the 1970s and early 1980s, Calgary planned to attract foreign tourists by integrating several modes of transportation in one terminal. Included would have been intercity bus passenger services, VIA Rail, the city's new light rapid-transit system and a shuttle bus to the airport with a check-in facility for airlines.

Two competing bus companies, Greyhound and Pacific Western Transportation, were eager to co-locate with VIA Rail but not with each other. When railway passenger service between Calgary and Edmonton was discontinued in 1986, Calgary's multimodal terminal planning ended.

Kitchener, Ontario

When its city council agreed that a catalyst was needed to revitalize Kitchener's downtown core, an urban/intercity bus transportation centre was chosen. The province of Ontario paid $3.8 million of the $10 million cost for the 28 bay terminal with parking and provision for a shopping mall. This multimodal transportation centre was opened in 1988.

Some interveners argued for public investment in multimodal terminals, saying that more travellers would choose public modes if transfers were more convenient. Although we have not found evidence to support this argument, it may be true. We do not believe, however, that building a terminal guarantees its effective use.

Scheduled urban bus transportation that links airports to cities can be found in such centres as Vancouver, Winnipeg, Toronto, Ottawa and Montreal. Direct rapid-transit links do not yet exist at any Canadian airport, nor are dedicated urban express bus connections as developed as they are in other countries. In many cases, public transportation services from the nearest airport to small cities are either infrequent or non-existent.

Bus companies told us that if Transport Canada's exclusive airport concessions to taxi and bus operators ended, the result would be increased services by the intercity bus operators. In addition, airlines might operate their own feeder buses. For service between airports and smaller communities, multiple-passenger taxi services, perhaps semi-scheduled, might be viable if they could pick up and deliver at the airports and were allowed unrestricted intercity operation. Eliminating licences and exclusive franchises would not, of course, require eliminating all charges for motor vehicle access to an airport, but these charges should be applied on an equal basis to private cars, taxis and buses.

We believe that levels of government must work together to improve air and ground connections while local authorities assume management of major airports.

Therefore, we **recommend** that:

15.1 Airport and municipal authorities cooperate to ensure unrestricted access to airports by all ground connectors who pay their share of the costs, and federal authorities grant all ground connectors open access to federally owned airports and rail stations.

15.2 All agreements for the sale or lease of federal transportation infrastructure include provisions that oblige the operating authority to grant open access to all intermodal connectors on equal terms and conditions.

ANTI-COMPETITIVE PRACTICES

Reducing regulations and removing impediments posed by differing regulatory jurisdictions may create a market dominated by one or two large, sophisticated carriers. We believe that our recommendations on open access would reduce the likelihood of a monopoly. We recognize, of course, that when competition is replaced with cooperation, dominant carriers, or a consortium of carriers, may gain market advantages and engage in anti-competitive practices.

In addition, transportation information technology, such as computer reservation systems, will play an important role in integrating passenger transportation services. Market forces will encourage the growth and development of these technologies, which, if controlled exclusively by one or two carriers, could lead to anti-competitive practices. How the government chooses to regulate against abuse by powerful data monopolies could influence future development of public intermodal connections.

Therefore, we **recommend** that:

15.3 To give all modes the opportunity to compete and to cooperate on an equal basis, the federal government extend its regulations governing the anti-competitive practices of computer reservation systems beyond the air mode to take a multimodal approach.

We believe that travelling Canadians would benefit from using intermodal connections and reservation systems that encourage cooperation and integration among modes.

ENDNOTES

1. The 65 percent for cars and corresponding percentages for the other forms of ground transportation are approximate, judgemental estimates based on information from a number of individual airports but not on systematic, comprehensive data.

CHAPTER 16

SEEING INTO THE SYSTEM: ACCOUNTABILITY AND TRANSPARENCY

INTRODUCTION

In Chapter 4, we stated that those responsible for making and applying transportation regulations and for spending taxpayers' dollars should be accountable for their actions. We said that governments can improve such accountability through transparency — making relevant information available and understandable. We further recommended that decision making be transparent so that Canadians can understand why choices are made.

In this chapter, we look at ways to improve accountability and to ensure that transportation expenditures and the reasons for making them are available to taxpayers and travellers. We are concerned with:

- what data are needed; and
- how the success or failure of the passenger transportation system can be judged.

WHAT CANADIANS TOLD US

WHAT THEY WANT TO KNOW

In our Interim Report,[1] we noted that Canadians had told us that they were not happy with the accountability and transparency of the passenger transportation system. They were not convinced that they were being told, with any accuracy, how their money was being spent, and they could not make a fair comparison between the travel modes because subsidies and costs were hidden within the system.[2]

In view of this, they wanted a more complete accounting of costs so that they could more adequately compare all modes, especially when considering large expenditures for new and improved infrastructure. They would also like a clear accounting of the subsidies paid by governments to the different modes of passenger transportation.

OBSTACLES TO TRANSPARENCY

Many who spoke to us recognized the difficulties in calculating the subsidies to each mode. These difficulties occur because:

- multiple levels of jurisdiction subsidize travel;
- governments report investment expenditures on air, road and water infrastructure as annual expenses that are, in turn, mixed in with annual operating expenses; and
- social and environmental costs are hard to measure.

Canadians asked us to do our best to help them understand how much money is being spent and how the levels of government are spending tax dollars on each mode. They asked for a comprehensive accounting of costs that would enable them to better evaluate transportation choices.[3]

ACCOUNTABILITY

BENEFITS OF NEW INSTITUTIONS

A Better Accounting of Costs

In Chapter 6, we recommended new institutions for managing the passenger transportation system. These new institutions would improve accountability and transparency because they would develop accounts differently from those maintained by federal, provincial and territorial departments of transport, and would report income and expenditures

in a more business-like way. For example, such institutions would regularly record investments in physical assets on a balance sheet — not as a current operating expense.

More-Visible Subsidies

The new institutions would be separate from government and would have a corporate structure. The result would be that, if a government decided to finance an activity that does not pay its way, that government would have to make public any subsidies paid for that activity. For example, if a government decided to build a road that did not meet the investment criteria of the road agency, it would have to pay the road agency to undertake the project, and the subsidy would be visible to the public in the government's accounts.

Throughout our report, we have recommended that governments make public not only the amount of subsidies, but the reasons for providing them. We believe that such information is necessary if taxpayers are to hold their governments accountable.

RECOMMENDATIONS FOR ACCOUNTABILITY

We also believe that, where agencies provide transportation infrastructure as monopoly suppliers, travellers and other interested parties should have a say in major decisions.

Therefore, we **recommend** that:

16.1 Where an agency providing transportation infrastructure is a monopoly supplier, the level of government responsible for the agency create an advisory body of travellers and other interested parties to counsel management on investment priorities, charging mechanisms and appropriate charges for achieving financial self-sufficiency.

Governments should be accountable in their roles as regulators and referees, as should government agencies who are monopoly suppliers of transportation infrastructure. Governments, therefore, must ensure that:

- objectives for such Crown corporations are clearly stated;
- information is available to allow taxpayers to assess the degree to which objectives have been met; and
- those responsible for making decisions are judged on their achievements.

The Need for More and Better Information

At present, there is a great deal of data available about Canada's passenger transportation system. During the course of our studies, however, we discovered many areas in which the data were not adequate to answer the questions we were mandated to investigate.

WHAT CANADIANS NEED TO KNOW

Data collection should meet the needs of users and other interested parties, such as ministers, government officials and carriers. To determine what information is necessary, we asked whether more or improved data are necessary to:

- predict what will happen to the system if a decision is taken to change it, or if the status quo continues;
- estimate the benefits and costs of proposed changes to the system; and
- evaluate the effects of a policy or program after it has been put in place. (In this case, the information should include the measurement of outputs as well as inputs. At present, governments rarely report on whether or not the programs' objectives have been achieved.)

CURRENT DATA GAPS

We identified several areas in which there are little or no data on the passenger transportation system. Table 16-1 shows where data gaps exist and how missing data would be used. The table indicates:

- what type of data is needed;
- the type of decision for which the data would be used;
- the contribution of such data in assisting people to participate in decision making;
- the difficulty of obtaining the data (the cost and the burden placed on those who must collect and report the information); and
- whether the gap is primarily one of data collection, estimation or analysis.

Table 16-1
CURRENT DATA GAPS

Type of data gap	How data would assist in making policy decisions	Contribution of data to accountability	Costs or burden	Action needed
Comprehensive coverage of services offered (frequency and points served) and prices.	To study the impacts of regulatory changes. To assess the adequacy of competition.	Good price and service data are key indicators of consumer impact.	Raw data are publicly available from the carriers, but data-base management would be required.	Data assembly and collation.
Information on public infrastructure and capital stock.	To provide a cost base for infrastructure pricing. To indicate the adequacy of replacement investment.	It will ease the evaluation of previous decisions, improve the transparency of capital costs and allow public capital costs to be compared with those of the private sector.	Establishing appropriate depreciation costs could be complex in some situations.	Estimation of depreciation, collection of data for existing projects.

Table 16-1 (cont'd)
CURRENT DATA GAPS

Type of data gap	How data would assist in making policy decisions	Contribution of data to accountability	Costs or burden	Action needed
Information on environmental impacts and costs.	To provide a basis for environmental charges and/or regulatory constraints. To help choose which mode to invest in when alternatives exist.	These data would help transportation policies to achieve environmental goals.	The costs would vary depending on the nature of the data required. The additional burden may be minimal if the data are also being used for an environmental assessment.	Evaluation of environmental damage and collection of data on environmental impacts.
Data on system use and volumes (especially for road travel).	To determine the demand for expansion when judging new projects. To allocate costs and design pricing policies appropriately. To assist in intermodal planning.	It will be used in evaluating projects and estimating the benefits of new or similar projects.	This may not be costly, either financially or in terms of response burden, if existing or modified highway counting systems can be used.	Data collection.
Information on the origin and destination of trips. (There is a large gap in highway data and some improvement needed in other modes.)	To provide background to assist in infrastructure investment and intermodal integration. To perform demand modelling.	This information would be helpful for understanding intermodal flows.	The collection of these data would be costly, and would require individual surveys.	Data collection.

RECOMMENDATIONS FOR DATA GATHERING

It is important that the data systems that we have begun to develop (in particular the estimates of costs of the passenger transportation system including environmental damage, safety and accident costs) be added to for future use and that data gaps be filled.

Therefore, we **recommend** that:

16.2 Governments allocate resources to the continuing improvement of travel and other transportation data and the data be available to the public.

16.3 Provincial and territorial governments cooperate with the federal government to ensure the collection of data for modes within their jurisdictions.

TRANSPARENCY

Better data would improve accountability, but would not necessarily ensure that passenger transportation decisions were more visible to Canadians.

We believe that Canadians should have access not only to information but to the reasons behind decisions that affect them as taxpayers and travellers.

Therefore, we **recommend** that:

16.4 The federal government publish an annual report card on the passenger transportation system to include such information as:

(a) who uses the transportation system and how much;

(b) the amounts and proportions paid by travellers, carriers and taxpayers;

(c) why, to whom and by whom subsidies if any are given;

(d) the reliability of the passenger transportation system;

(e) the safety of the passenger transportation system;

(f) the costs not recovered from travellers and carriers for such activities as policing highways, providing medical assistance for victims of traffic accidents, and repairing environmental damage caused by the transportation system; and

(g) the degree to which passenger transportation policy, and regulatory and expenditure decisions meet stated objectives.

ENDNOTES

1. *Getting There: The Interim Report of the Royal Commission on National Passenger Transportation* (Ottawa: Supply and Services Canada, April 1991), pp. 156-57.

2. Such subsidies and costs certainly include expenditures for policing highways, providing medical assistance for victims of traffic accidents, and repairing environmental damage caused by the transportation system. They would also, in principle, include any tax expenditures specific to transportation such as capital subsidies for the purchase of transportation equipment.

3. Two examples of improved transparency are the New Zealand Land Transport Fund and the Swiss Road Account. See New Zealand Ministry of Transport's "Land Transport System" and Francis-Luc Perret and P.A. Jaccard, "The Swiss Road Account," in the European Conference of Ministers of Transport, *Report of the Eightieth Round Table on Transport Economics on Systems of Road Infrastructure Cost Coverage*, Paris, February 1989.

CHAPTER 17

IMPLICATIONS FOR INTERNATIONAL COMPETITION AND FOREIGN OWNERSHIP

Introduction

Policy changes in transportation, as in other sectors of the economy, may affect Canada's economic relations with the rest of the world, particularly the United States, Canada's major trading partner. In the first part of this chapter, we discuss the potential effects that new charges for transportation infrastructure, environmental costs and accident costs will have on Canadian carriers who face international competition.

This chapter also considers, within the context of our principles, the issues associated with foreign ownership and entry of foreign-owned carriers into the Canadian market. We explored aspects of these issues in the discussion of international air policy in Chapter 11. In this chapter, we provide a broader review of how the application of our principles to all modes might affect international competition and investment, including foreign ownership.

Transportation Charges and International Competition

Since many Canadian carriers are in competition with foreign carriers, we asked:

- If travellers must pay increased transportation charges, would such increases put Canadian carriers at a disadvantage with foreign competitors?
- Should concern about potential competitive disadvantages constrain the extent to which governments shift transportation costs from taxpayers to travellers?

- In previous chapters, we urge governments to consider the extent to which they treat the modes differently with respect to direct and indirect subsidies and taxes, because these differences may affect the ability of one mode to compete with another. Should governments be equally concerned that the treatment of a particular mode in Canada is different from the treatment of the same mode in other countries, particularly in the United States, where transportation subsidies are extensive?

In examining these questions, we asked more specifically:

- In what circumstances would higher charges create a competitive disadvantage for Canadian carriers?
- Where there is such disadvantage, in what circumstances would it affect the efficient functioning of the Canadian economy?

SITUATIONS WITH NO COMPETITIVE DISADVANTAGES

We believe there are many situations in which higher charges in Canada will not affect the ability of Canadian carriers to compete with foreign carriers. This is either because such competition does not exist, or because foreign carriers also would be subject to Canadian charges when they provide services that compete with Canadian carriers. Two examples follow.

Domestic services: Higher charges do not affect competition on those domestic services where travellers have little choice of alternative routes through the United States — for example, a trip from Calgary to Edmonton. International competition would also likely be unimportant on trips from Toronto to Montreal, and probably the majority of domestic routes. In some cases, however, the higher costs of a domestic trip might influence a traveller, particularly a tourist, to shift to a foreign destination. The result would be some adverse effects for Canadian suppliers of tourist services, and possibly for Canadian carriers.

Trans-border services: Higher fuel charges would probably have little effect on the competitive positions of Canadian and foreign carriers. Both groups of carriers face similar needs and opportunities to obtain fuel during the Canadian and foreign portions of their routes. Similarly, higher road tolls, airport landing charges and air navigation fees, which are also directly related to distance travelled or infrastructure used within Canada, would have little effect on the competitive position of Canadian carriers. Higher annual licence fees, however, could put Canadian carriers at a disadvantage unless foreign carriers face a comparable charge in relation to their use of Canadian infrastructure.

It is important to structure Canadian transportation charges so that they apply equally to Canadian and foreign carriers on routes that are entirely or partially in Canada. If equal charges are not possible (for example, if foreign carriers have better access to cheaper fuel than domestic carriers do), then special measures may be necessary. Foreign carriers may have to pay the equivalent of the Canadian charge, or governments may have to make less use of the specific charge.

SITUATIONS WHERE COMPETITIVENESS IS AFFECTED

In some cases, a route through another country — primarily the United States — can serve as an alternative to a Canadian route. The result is that a foreign or Canadian carrier can avoid the higher Canadian charges associated with the Canadian route. For example, a Vancouver to Toronto air traveller might take two flights involving a U.S. stopover, or might take ground transportation to nearby U.S. airports and fly from the United States. Re-routing via the United States, as a result of higher Canadian charges, could affect Canadian air travel and have a substantial impact on Canadian carriers.

We do not believe there is any gain in keeping traffic in Canada that does not cover costs. For example, raising charges on trucks to cover the costs of wear on Canadian highways might cause some truckers to use U.S. routes with lower charges that do not cover the cost of road wear. If Canadian governments set charges to truckers low

enough to retain the traffic in Canada, the gains to the economy from the charges, even with higher traffic, would not cover the costs of road wear; general taxpayers would therefore have to make up the difference. While the competitive position of Canadian truckers may suffer as a result of such higher road charges, maintaining a competitive position through a form of subsidy — charging less than costs — will not benefit the Canadian economy.

Similarly, if a carrier ceases to be competitive when it faces the full costs of its accidents and environmental damage, the Canadian economy is not likely to benefit from maintaining activities that cannot cover these costs.

There are two situations, however, where traffic diverted as a result of Canadian charges could involve a net loss to the Canadian economy: when environmental charges are based on global damages, and when transportation infrastructure charges are substantially higher than marginal costs.

When Environmental Charges are Based on Global Damages

If Canadian charges for environmental damage are based, not on damage in Canada, but on global damage, diverted traffic may result in a loss to Canada and little gain to the world. For example, Canada could impose a fuel charge for carbon dioxide (CO_2) emissions that is much higher than the charge imposed in the United States. The result could be lower revenues for Canada when traffic shifts to the United States and no environmental benefit to Canada or the world. There would be no reduction in CO_2 released, only a shifting of emissions out of Canada to the United States.

Although Canada may wish to show leadership in responding to global environmental problems, it will pay an economic price if it moves much ahead of other countries in pursuing such environmental objectives, either through higher charges or through stricter regulatory standards.

In Chapter 7, we identify global warming as a multinational issue and recommend that Canada strive to obtain international agreement on strategies that coordinate national policies and charges aimed at reducing global warming. It would not be appropriate for Canada to differ greatly from competitors in those environmental policies where the benefits of Canadian action are not concentrated in Canada but are global, and where the real benefit to Canada depends not on Canadian action but on global action. Canadians, however, should not lag behind the rest of the world in meeting their responsibilities in reducing global pollution.

When Transportation Infrastructure Charges are Substantially Higher than Marginal Costs

In Chapter 5, we examined situations in which transportation infrastructure charges may have to be substantially above marginal costs to achieve full cost recovery. In such cases, the value of the benefits received by a group of users should be a factor in determining the extent to which charges are in excess of marginal costs.

In a hypothetical example, the marginal cost associated with providing air navigation services for a passenger aircraft on a Vancouver to Toronto flight could be $100, but a charge of $300 has been set as part of recovering the costs of the air navigation system, since many of its costs do not vary proportionately with use. If such a charge results in an aircraft shifting from a Canadian to a U.S. route, Canada loses $300 in revenue but avoids only $100 in costs. Clearly, if it results in a substantial shift of traffic to the United States, this charging scheme will not be successful in recovering full costs.

In Chapter 5, we described our approach to pricing, in which some infrastructure charges take account of the value of benefits received. In applying that approach to our hypothetical example, one should recognize that:

- The alternative U.S. route reduces the value of the benefit of the Canadian air navigation system to the aircraft operator, who can make use of the U.S. route.

- Because the operator would not value the Canadian infrastructure as highly, the operator's desire to use the Canadian infrastructure would be more responsive to price than that of an operator who had no alternative.
- Therefore, operators in a position to substitute use of foreign infrastructure for a Canadian one should not be charged as high a mark-up over marginal cost as those who have no choice.

We recognize that foreign charges on competing routes and infrastructure do constrain the extent to which transportation charges in Canada should exceed marginal costs. We note, however, that the United States and other countries are changing the way they are charging for their transportation systems.

CONCLUSION

From our review of transportation charges and international competition, we conclude that:

- The appropriate starting point in setting charges for infrastructure, environmental damage and accidents is still the efficient costs associated with use in Canada for the different modes, rather than the level of foreign charges for the modes.
- Under our principles, net increases in charges to air and car travellers for transportation infrastructure, accidents and environmental damage would generally not be large relative to the overall cost of travel currently borne by travellers (Chapter 18). In addition, such increases would, in part, be offset by the gains that travellers experienced as a result of the new institutional arrangements that were more responsive to their needs, and provided better service.
- In many cases, the absence of foreign competition or the equal treatment of foreign and Canadian competitors, means that the competitive impact of Canadian charges compared with foreign charges would not be significant. Governments should be careful to design charges so that they apply equally to Canadian and foreign carriers using the same routes.

- There are situations, especially where there is a choice between a Canadian route and a foreign route, when the charges may affect the competitive position of Canadian carriers or may affect the route chosen by both Canadian and foreign carriers.
- Even if Canadian charges affect the competitive position of Canadian carriers, Canada's economy will not likely benefit when charges are set below marginal costs.
- There are two situations in which charges are set above marginal costs and in which the level of foreign charges should constrain Canadian charges.

  The first occurs when an environmental charge is based on global damage rather than on damage in Canada. It would be costly for Canada to impose higher charges than those imposed by its major trading partners. We strongly support international coordination of environmental policies and charges.

  The second occurs when transportation infrastructure charges are set above marginal costs to recover infrastructure costs fully. The ability of a group of travellers to substitute use of foreign infrastructure for Canadian infrastructure will constrain the extent to which charges can be raised above marginal costs.

Foreign Ownership

Under our proposals, any competitor who is "fit, willing and able" to supply passenger carrier services should have an opportunity to do so. We do not distinguish whether the competitor is a domestic or a foreign carrier. In transportation, as in other sectors of the economy, foreign competition can contribute to lower costs and improved product quality. Foreign carrier entry can be particularly important in those markets where actual and potential domestic competition is weak or absent.

Foreign carrier entry into the Canadian market may involve establishing a new Canadian base of operations by the foreign carrier, or acquiring a Canadian carrier. Restrictions on either form of entry may

reduce competition and pressures for efficient performance. Restrictions on foreign ownership could also result in a carrier being taken over by an existing domestic carrier, leading to a substantial increase in market concentration. In addition, controls on foreign ownership may prevent a firm from being integrated into a larger multinational operation and realizing major gains in efficiency.

At the same time, trade barriers — which Canada is not in a position to eliminate through its actions alone — prevail in world markets for some transportation services. These barriers should be taken into account when judging Canadian trade and foreign ownership policies.

AIR CARRIERS

As discussed in Chapter 11, today Canadian air carriers can enter foreign markets only through government-to-government negotiations in which foreign carriers are simultaneously offered increased access to Canadian markets. Unilaterally opening Canadian markets by giving landing rights to foreign carriers, in effect "giving away our bargaining chips," would foreclose opportunities for Canadian carriers to gain entry into new foreign markets. As we noted in Chapter 11, giving landing rights could also lead to the creation of monopolies on certain important international routes. A foreign government may be inclined to take advantage of the resulting opportunity to designate its national airline as the sole carrier on major routes to and from Canada.

We conclude that, in general, the federal government should not depart unilaterally from the special rules of government-to-government negotiation that characterize international air services. We recognize, however, that this approach may conflict with the need to maintain competition and ensure that air travellers are provided with low-cost, reliable service. Recommendation 11.6 and the final section of Chapter 11 on Open Skies address those situations where the benefits from new entry justify a departure from the traditional approach toward foreign ownership and competition in the airline industry.

RAIL CARRIERS

Passenger rail carriers generally operate within the borders of their home countries. This is true for VIA Rail in Canada and Amtrak in the United States, with the following exceptions:

- VIA Rail routes between Montreal and Halifax pass through Maine; and
- Amtrak uses Canadian track on its services into Toronto and Montreal and, in collaboration with VIA Rail, provides some domestic service in southern Ontario.

We do not believe that there is reason to restrict access to Canadian track by a foreign-owned rail carrier as long as the foreign carrier pays appropriate charges and is governed, while operating in Canada, by the same rules that govern Canadian-owned carriers.

BUS CARRIERS

Most companies in Canada's regulated intercity bus industry are domestically controlled. An exception is the country's largest carrier, Greyhound Lines of Canada Ltd., which is controlled by U.S. shareholders. Greyhound Canada's intercity bus operations earned about 40 percent of total industry revenue in 1989, or about three times as much as the next-largest intercity bus carrier. Our recommendations in Chapter 13 would benefit Canadian travellers by easing entry into the industry for both Canadian-controlled and foreign-controlled firms. The result would be a competitive environment that encouraged bus companies to innovate, reduce costs and improve service.

Bus carriers from the United States seeking entry into Canada would be subject to similar "fit, willing and able" criteria as Canadian carriers seeking to compete in those U.S. jurisdictions that have eliminated economic regulation. Many states in the United States continue to restrict entry into their intrastate markets. The United States *Bus Regulatory Reform Act, 1982*, however, deregulated interstate busing

and allowed the Interstate Commerce Commission to grant interstate carriers the right to serve points within a state on a new or existing interstate route.

We encourage the federal government to press for a relaxation of entry restrictions into those U.S. states that continue to impose economic regulation. Whatever emerges from such negotiations, however, we believe the interests of Canadian travellers are best served by relaxing provincial entry controls that apply to all firms, foreign as well as Canadian-owned.

FERRY CARRIERS

There are no Canadian restrictions on the ownership or control of ferry services. Restrictions do exist on the vessels that may be used to carry passengers between two Canadian ports, but such restrictions are designed to protect the Canadian shipbuilding industry, not the ferry operators. (Domestic water transportation is reserved for Canadian-registered ships. Foreign-registered vessels are subject to a substantial customs import duty, unless a waiver can be obtained owing to the lack of a suitable Canadian-registered vessel.) By contrast, the United States is highly protective of its carriers. Under the *Jones Act*, only U.S.-owned ferries can transport passengers between two ports in the United States. We believe this is an inappropriate model for Canada. Foreign ownership and entry restrictions are not consistent with our principles and are not in the long-term interest of Canadian ferry users.

In all modes, Canada will benefit from foreign competition as long as foreign carriers operating in Canada are governed by the same regulations that govern Canadian carriers.

CHAPTER 18

ADDING IT ALL UP: PASSENGER TRANSPORTATION COSTS — TODAY AND TOMORROW

INTRODUCTION

In this chapter, we provide estimates of the costs of transportation today and how we expect our principles to affect these costs in the future. To demonstrate how our recommendations would change costs, Tables 18-1 to 18-4 show:

- what is paid today, and by whom;
- what would be paid in the year 2000, and by whom, if governments do not change current transportation policy; and
- what would be paid in the year 2000, and by whom, if governments implement the recommendations in this report.

We want to stress that our recommended changes in charges to travellers are not an "add on" to existing fees, charges and taxes paid by Canadians. Canadians are already paying all the costs of transportation in some way. Increases in charges to travellers will be offset by making available billions of dollars annually that governments can use to lower taxes. As well, our charges to travellers are based on the provision of an efficient level of services and infrastructure, not "gold-plated" ones — you get what you pay for and only pay for what you get.

All estimated costs, for today and for the future, are in 1991 dollars. We did not build in estimates of inflation in the general level of prices that may occur between 1991 and 2000. We believe that giving costs in same-year dollars provides a better comparison.

We ask readers to understand that the costs in the tables and the text are not precise estimates, but are rough indications of the direction and magnitude of change and of the differences among the costs by mode. Providing precise estimates of future passenger transportation costs is beyond the scope and resources of the Royal Commission. When governments implement our recommendations, producing more precise estimates will require a substantial amount of work.

We cannot forecast with any precision how the Canadian population, economy and society will develop over the coming decades, or how the location of activities and the demands for intercity travel might alter. We do expect that intercity travel will continue to grow faster than the population and general economic activity, probably doubling each generation, and that long-distance travel, particularly by airplane, will grow faster still. Governments will implement our recommendations against this background of continual change. Our recommendations, in turn, will bring about further changes.

We do not believe that it is necessary to have precise forecasts to be confident that the effects of our recommendations will be beneficial. Under our principles, carriers and travellers will pay the full costs of travel. The result will be that they use transportation resources more efficiently in their choice of trips, modes and routes. For example:

- Transfer of road costs from taxpayers to car and other motor vehicle users will affect car use, causing consolidation of trips and — everything else being equal — shifts to other means of travel. There will be some encouragement of denser patterns of land use and of slower growth in car ownership.
- Reduction of fares on buses, following relaxation of economic regulation, will stimulate bus use, with some travellers switching from other means of travel and others making bus trips they would otherwise not have made.

- Charges for environmental damage will lead consumers to use cars that cause less damage, and may lead car makers to manufacture less-polluting cars.

The resulting changes in total travel and in the share of each mode will depend on many factors that interact in subtle and complex ways. We cannot forecast all the changes that will occur and their impact on transportation costs. But we can predict the major changes that will affect transportation costs for travellers, carriers and providers of infrastructure.

Costs for Illustrative Routes

We present illustrative costs for four intercity routes that represent different types of travel by length, passenger volume and carrier type. The costs are not specific to the routes, but are based on average costs for the type of service and distance.

Four Illustrative Routes

- **Saskatoon to Halifax: a long-distance route consisting primarily of medium-volume segments.**
- **Toronto to Montreal: a high-volume, medium-distance route.**
- **Churchill to Winnipeg: a low-volume, medium-distance route with no continuous road.**
- **Halifax to St. John's: a medium-volume, medium-distance route that may include ferry travel.**

READING THE TABLES

The following categories of transportation costs are shown in each route table:

Types of Transportation Costs[a]	
Infrastructure:	**costs of terminals, links and traffic control systems not provided by carriers.**
Environmental:	**costs of environmental damage associated with vehicle/carrier opertions.**
Accident:	**costs of death, injury (including health care costs) and property damage associated with transportation accidents.**
Special Tax/Fee:	**costs of fuel taxes and vehicle, carrier and drivers' licences.**
Vehicle/Carrier:	**costs of vehicles and carrier services.**

a. For more-detailed information on types of transportation costs, see Chapter 3.

The three blocks in the route tables with three columns in each block illustrate transportation costs in the following manner:

- "1991" shows current costs by means of travel. These figures are calculated on the same basis as the estimates in Chapter 3, and are identical to the Chapter 3 tables where they apply to the same routes.
- "2000 S-Q" shows costs projected for the year 2000, presuming the status quo (that is, no substantial adjustment to current transportation policy).
- "2000 D" projects costs for the year 2000, presuming that the recommendations in this report, *Directions*, are implemented.

Within each block, we identify two groups that pay the costs of transportation: users and others. "Users" include travellers and carriers.

"Others" are taxpayers and those affected by such factors as environmental pollution. The three columns in the block show costs paid by users and others and the total costs.

Users	*Others*
Travellers	**Taxpayers, through direct subsidies to carriers and subsidies for infrastructure**
Carriers	**General public, through the effects of environmental damage**
Vehicle owners	**Taxpayers, through health care costs of accident victims**
	Travellers on other routes (cross subsidy)

Users' Costs + Others' Costs = Total Costs

If our recommendations changed how Canadians pay for passenger transportation, but did not change governments' or carriers' behaviour in providing transportation, or travellers' use of transportation, the impact would be simply to shift costs from others to travellers, with no impact on total costs.

In other words, total costs in the 2000 D case would be identical to the 2000 S-Q case, but others' costs in the 2000 D case would have dropped to zero (or close to zero, subject to some remaining transitional subsidies), while users' costs would have increased by a corresponding amount.

In fact, we expect that our recommendations will lead to changes in the behaviour of governments, carriers and travellers; changes that will reduce the total costs of providing transportation services. Therefore, we expect several components of the total costs in the 2000 D case to be lower than in the 2000 S-Q case, and costs to users will not, in general, have to rise by the full amount of the reduction in costs borne by others. Inevitably, our estimates of these reductions are

often quite approximate; they are intended to indicate the order of magnitude of the potential for cost reductions that might reasonably be achieved when our recommendations are implemented.

The tables show cost component estimates to the nearest dollar, although in many cases the figures are subject to margins of uncertainty of several dollars or, in some cases, several tens of dollars. We trust readers will bear with us when we refer to, for example, a cost of $378, and will interpret this as roughly $400. Our use of nearest-dollar figures is motivated by our wish to show some cost components that are only a few dollars, coupled with our wish to allow readers to see how the figures in the tables add up — which would be obscured by use of rounded components and totals.

Charts 18-1 to 18-4, corresponding to the tables, provide an alternative display of the 2000 S-Q and 2000 D cases (see explanation of chart format in Chapter 3).

All four routes share common features, and we discuss these in the text for the first route, Saskatoon to Halifax.

ROUTE #1: SASKATOON TO HALIFAX

Saskatoon to Halifax: 1991 Costs

The average overall costs per person travelling this type of route are $747 by car, $313 by bus, $443 by airplane and $1,532 by train.

For car travel, travellers pay $168 in accident costs (through insurance premiums and uncompensated damage losses), $53 in special taxes and fees, and $487 for vehicle/carrier expenses. Of others' costs, governments pay $67 to provide infrastructure. The public bears the environmental damage costs, estimated at $19 in winter and $24 in summer, or an average of $21 year-round. Another $4 for health care costs is unrecovered from motor-vehicle insurance companies and is paid by governments, but they receive $53 in special taxes and licence fees from motorists. In aggregate, travellers pay $708, while others pay $39 per car traveller for a route of this type.

Table 18-1

Illustrative Comprehensive Costs per Passenger in 1991, 2000 "Status Quo" and 2000 "Directions" — Route #1, Saskatoon to Halifax

Dollars per trip, in 1991 dollars

Type of cost	Car 1991			Car 2000 S-Q			Car 2000 D		
	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	0	67	67	0	67	67	81	–18	63
Environmental	0	21	21	0	18	18	16	0	16
Accident	168	4	172	151	3	154	154	0	154
Special tax/fee	53	–53	0	53	–53	0	0	0	0
Vehicle/Carrier	487	0	487	476	0	476	468	0	468
Total	**708**	**39**	**747**	**680**	**35**	**715**	**719**	**–18**	**701**

Type of cost	Bus 1991			Bus 2000 S-Q			Bus 2000 D		
	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	0	8	8	0	8	8	9	–1	8
Environmental	0	7	7	0	7	7	5	0	5
Accident	18	0	18	16	0	16	16	0	16
Special tax/fee	9	–9	0	9	–9	0	0	0	0
Vehicle/Carrier	261	19	280	261	19	280	252	0	252
Total	**288**	**25**	**313**	**286**	**25**	**311**	**282**	**–1**	**281**

Type of cost	Airplane 1991			Airplane 2000 S-Q			Airplane 2000 D		
	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	37	68	105	37	47	84	66	0	66
Environmental	0	22	22	0	18	18	17	0	17
Accident	4	0	4	4	0	4	4	0	4
Special tax/fee	15	–15	0	13	–13	0	0	0	0
Vehicle/Carrier	368	–56	312	272	0	272	272	0	272
Total	**424**	**19**	**443**	**326**	**52**	**378**	**359**	**0**	**359**

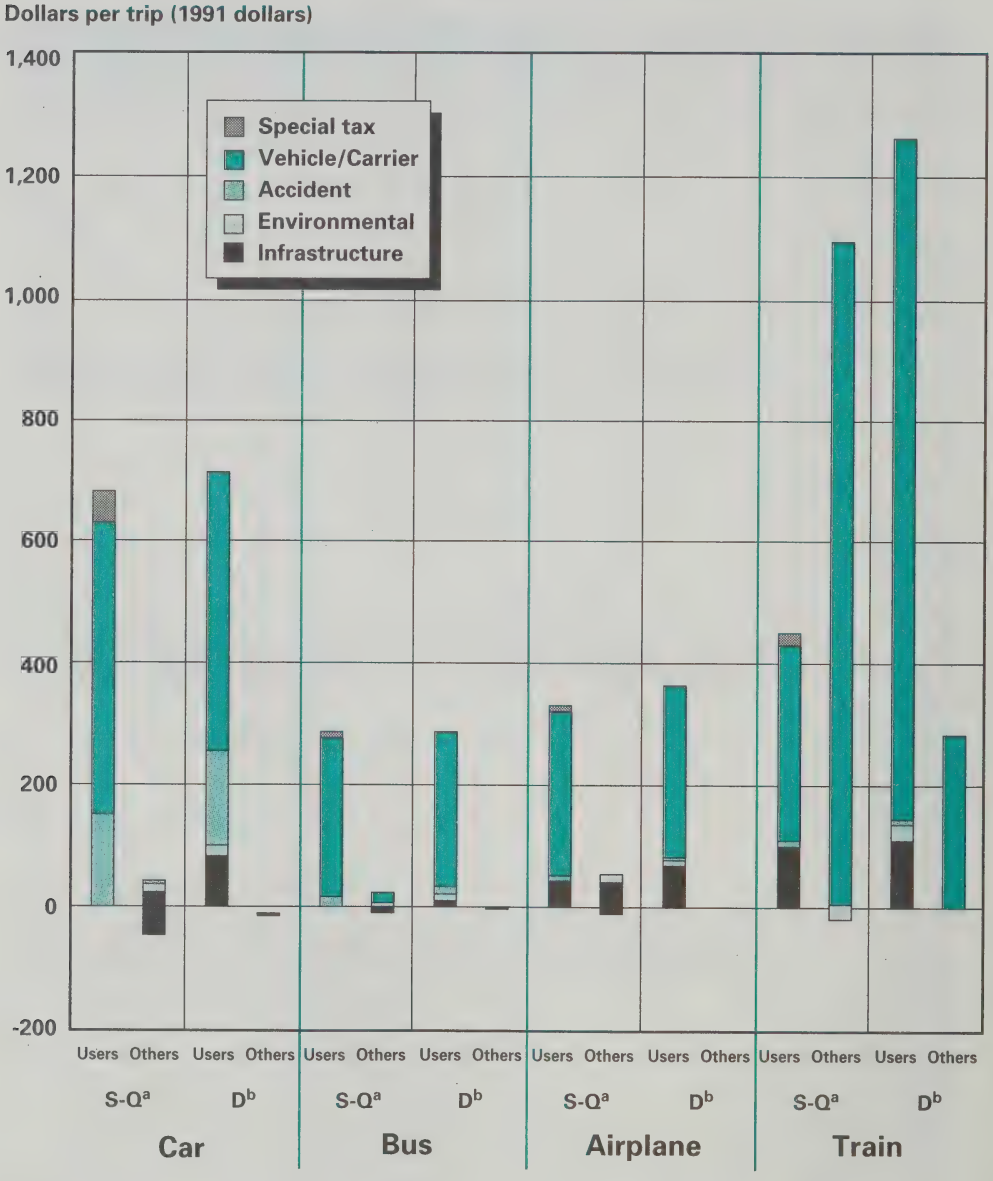
Type of cost	Train 1991			Train 2000 S-Q			Train 2000 D[a]		
	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	93	0	93	99	0	99	113	0	113
Environmental	0	28	28	0	28	28	23	0	23
Accident	8	0	8	8	0	8	8	0	8
Special tax/fee	21	–21	0	21	–21	0	0	0	0
Vehicle/Carrier	264	1,139	1,403	322	1,090	1,412	1,127	285	1,412
Total	**386**	**1,146**	**1,532**	**450**	**1,097**	**1,547**	**1,271**	**285**	**1,556**

a. It is assumed that passengers would abandon some of this rail service before 2000, as subsidies were gradually withdrawn.

Note: In order to illustrate smaller components, route totals are shown to the nearest dollar. In general, cost estimates are not accurate to this level of precision. See text for qualifications.

Chart 18-1

Illustrative Comprehensive Costs per Passenger Projected to 2000, Saskatoon to Halifax



a. S-Q is status quo for year 2000.
b. D is with the recommendations in "Directions" implemented in 2000.

Note: The chart is a graphic representation of Table 18-1. Any negative components of costs borne by others are represented by shifting the others bar below the zero line.[1]

By comparison, the average traveller using a public carrier pays $288 for bus, $424 for airplane and $386 for train. Others pay $25 of the costs per trip by bus, $19 per trip by airplane, and $1,146 per trip by train.

For airplanes, the vehicle/carrier cost borne by others (–$56) shows that the charges to air travellers are $56 more than the costs of providing the service. The system-average revenue for journeys of this length in southern Canada is $368 (net of taxes, infrastructure charges and traveller-borne accident costs) and the system-average cost (including normal profits) is $312. Air travellers on this route pay $56 toward the cost of other air routes. This type of route is thus currently estimated to be characterized by above-average profitability. Differences in the profitability of route types change over time. We have assumed that the average fare equals the average cost for the year 2000 in both the 2000 S-Q and the 2000 D scenarios.

Saskatoon to Halifax: 2000 Status Quo

The estimated costs of travel in the future, without any significant change in transportation policy, allow for the following anticipated developments in traffic and technology:

- Domestic air travel and road traffic grow at 3 percent per year. We have adjusted the costs for infrastructure provided by governments to accommodate this growth.
- Considerable reductions in fuel consumption per passenger-kilometre occur as a result of new technology and the turnover of vehicle fleets — 13 percent on average for cars, and 15 percent for aircraft. Such reductions will lessen carbon dioxide (CO_2) emissions from these vehicles by the same proportions. Improved motor-vehicle emission control equipment reduces average emissions of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) by 40 percent.
- New train technologies may contribute to reducing costs such as environmental damage, but we have not shown any improvement by the year 2000 given the slow turnover of long-lasting railway

locomotives. We also assume that rail passenger cars and service levels will be upgraded on the Western Transcontinental. This will be accompanied by some increase in infrastructure costs, vehicle/carrier costs, and revenues from users.

- Newer aircraft make substantially less noise; thus average noise costs fall as older models are replaced.
- Improvements in road safety continue, reducing accident costs per passenger-kilometre for car and bus by 10 percent.

Overall, total costs in 2000 S-Q fall from 1991 levels by approximately 4 percent per car trip and 15 percent per airplane trip.

Saskatoon to Halifax: 2000 Directions

We expect important changes in all modes as a result of the implementation of our recommendations.

Car: The special transportation tax/fees (fuel tax and licence fees) will be replaced by specific charges for infrastructure and environmental damages. If special taxes are viewed as charges for road infrastructure, in 2000 S-Q the overall recovery of infrastructure costs from travellers is only 50 percent across the entire road network, although it amounted to $53 out of $67 on this type of route.

We expect that in the year 2000, road charges will still need to be averaged across all highways within a province or territory, although charging by route will eventually be feasible. We show the cost to users for infrastructure provided on this route as an $81 road charge in 2000 D, generating a $18 surplus over the road costs for this type of route. This is necessary to cover the deficits on more-lightly travelled highways. We expect total road costs to fall as a result of improvements in investment planning and consultation with users in the rate-setting process. This is represented by a 5 percent decrease in road infrastructure costs for car travel over the 2000 S-Q costs.

The environmental damage charge would be set at the rate for air pollutant damage, most probably as a fuel surcharge. We expect that this charge, together with the increase in fuel charges described in the preceding paragraph, will stimulate travellers to reduce fuel consumption and emissions. The result is represented by a 10 percent reduction in fuel use, and thus in environmental damage and in the fuel component of vehicle/carrier costs. The environmental damage charge to travellers is $15 per trip in winter and $18 in summer, or $16 averaged over the year.

Users pay $39 more than the 2000 S-Q costs, or a 6 percent increase. Others do not pay anything, and the $18 surplus pays for less-used highways in the provinces through which the route passes. In total, the combined costs of car travel will fall by about 2 percent from 2000 S-Q to $701 for this type of trip.

Bus: Bus companies, and hence bus travellers, currently and in 2000 S-Q, pay special transportation taxes/fees that, on average, more than meet the costs of the roads; thus the infrastructure charge would not differ appreciably from the current fuel tax ($9). The environmental charge to users would be $5 per trip, resulting in a slight increase per passenger in the total of infrastructure charges, environmental charges, accident costs and special taxes (with the latter having disappeared in the 2000 D scenario).

With our recommendations in place, however, the bus industry would be open to competition, giving bus companies greater commercial freedom and eliminating cross subsidization of low-volume services from higher-volume routes. The resulting improved efficiency is represented by reductions of 10 percent per passenger in vehicle/carrier costs (from $280 in the 2000 S-Q case to $252 in the 2000 D case).

The 2000 D case shows a decline of $4, or 1 percent, in total users costs; the savings induced by greater competition would, in this case, be substantially offset by the elimination of cross subsidy.

Airplane: Under our recommendations, the federal government will transfer the costs of airports and the air navigation system from taxpayers to travellers. In addition, most airports and the air navigation system would be run as commercial operations. For a Saskatoon–Toronto–Halifax routing, we expect such changes would reduce total air infrastructure costs from $84 per trip in 2000 S-Q to $66 per trip in 2000 D. These costs would be paid directly or indirectly by air travellers.

The environmental charge to users would be $17 per user per trip in 2000 D; at the same time, governments will eliminate special fuel taxes. The net increase or charges, in turn, would cause carriers to slightly reduce fuel consumption.

Overall, fares (total costs to users) would rise by 10 percent, or $33, reflecting the transfer of costs from the taxpayer to the traveller, but total air trip costs would fall by 5 percent.

Train: We are recommending that taxpayers provide passenger rail with declining subsidies during a 10-year transition period. Much of the rail route between Saskatoon and Halifax is lightly used, and there are few prospects for substantial reduction in costs. For the year 2000, we show the subsidy as three-quarters phased out. The price to potential train travellers on this route, assuming no change in the number of passengers, would have risen substantially — to more than three times the average price of air travel. It seems likely that the number of travellers choosing the train would decline on several of the links that make up this route, and that passenger rail service, on some of these links, would be discontinued prior to 2000.

ROUTE #2: TORONTO TO MONTREAL

Toronto to Montreal: 1991 Costs

Total costs per passenger-trip on routes of the Toronto to Montreal type are $89 by car, $37 by bus, $194 by airplane and $137 by train.

On this type of route, bus passengers do not impose costs on others. The road-infrastructure costs and environmental costs are approximately balanced by special transportation taxes/fees (primarily fuel taxes). As well, fares paid by bus travellers exceed carrier costs; the excess is available to cross subsidize other bus services.

For the remaining types of travel:

- Others pay $4 of the total cost per car trip, because special taxes do not fully cover infrastructure, environmental and accident costs.
- On airplane flights, taxpayers and the public contribute a $20 shortfall in cost recovery on government-provided infrastructure plus $6 in environmental costs, minus $3 received from special (fuel) taxes. Travellers on other air routes provide $35 in estimated cross subsidy toward vehicle/carrier costs. (Travellers on this route make a lower than average contribution to overhead.)[2] Thus, in total, others contribute $58 per trip by airplane.
- Others pay $84 of the costs per passenger of the train service, nearly all for the direct subsidy to VIA Rail's vehicle/carrier costs.

Toronto to Montreal: 2000 Status Quo

Costs per bus trip are projected to remain constant, while costs in the other modes would decrease slightly. We expect important improvements in train travel through cost economies, service improvements and revenue enhancement, so that overall cost recovery from train travellers on this route would increase from 39 percent in 1991 to 47 percent by 2000.

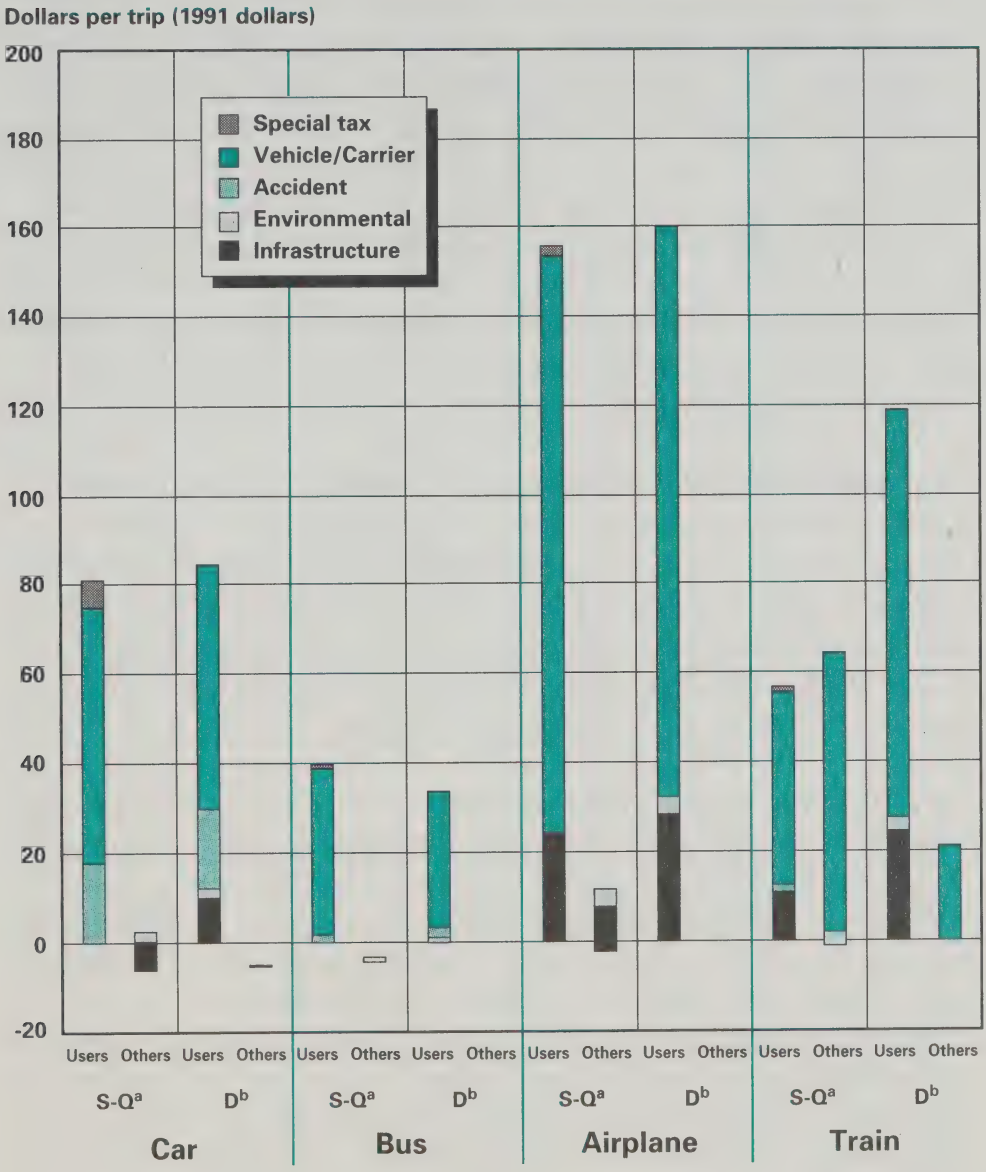
Table 18–2

Illustrative Comprehensive Costs per Passenger in 1991, 2000 "Status Quo" and 2000 "Directions" — Route #2, Toronto to Montreal

Dollars per trip, in 1991 dollars									
Type of cost	Car 1991			Car 2000 S-Q			Car 2000 D		
	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	0	6	6	0	6	6	11	–5	6
Environmental	0	4	4	0	3	3	3	0	3
Accident	20	0	20	18	0	18	18	0	18
Special tax/fee	6	–6	0	6	–6	0	0	0	0
Vehicle/Carrier	59	0	59	57	0	57	56	0	56
Total	**85**	**4**	**89**	**81**	**3**	**84**	**88**	**–5**	**83**
Type of cost	Bus 1991			Bus 2000 S-Q			Bus 2000 D		
	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	0	0	0	0	0	0	0	0	0
Environmental	0	1	1	0	1	1	1	0	1
Accident	2	0	2	2	0	2	2	0	2
Special tax/fee	1	–1	0	1	–1	0	0	0	
Vehicle/Carrier	37	–3	34	37	–3	34	31	0	31
Total	**40**	**–3**	**37**	**40**	**–3**	**37**	**34**	**0**	**34**
Type of cost	Airplane 1991			Airplane 2000 S-Q			Airplane 2000 D		
	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	22	20	42	24	10	34	28	0	28
Environmental	0	6	6	0	4	4	4	0	4
Accident	0	0	0	0	0	0	0	0	0
Special tax/fee	3	–3	0	3	–3	0	0	0	0
Vehicle/Carrier	111	35	146	128	0	128	128	0	128
Total	**136**	**58**	**194**	**155**	**11**	**166**	**160**	**0**	**160**
Type of cost	Train 1991			Train 2000 S-Q			Train 2000 D		
	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	9	0	9	11	0	11	25	0	25
Environmental	0	3	3	0	3	3	3	0	3
Accident	1	0	1	1	0	1	1	0	1
Special tax/fee	1	–1	0	1	–1	0	0	0	0
Vehicle/Carrier	42	82	124	44	62	106	90	21	111
Total	**53**	**84**	**137**	**57**	**64**	**121**	**119**	**21**	**140**

Note: **In order to illustrate smaller components, route totals are shown to the nearest dollar. In general, cost estimates are not accurate to this level of precision. See text for qualifications.**

Chart 18-2
Illustrative Comprehensive Costs per Passenger, Projected to 2000, Toronto to Montreal



a. S-Q is status quo for year 2000.
b. D is with the recommendations in "Directions" implemented in 2000.

Note: The chart is a graphic representation of Table 18-2. Any negative components of costs borne by others are represented by shifting the others bar below the zero line.[1]

Toronto to Montreal: 2000 Directions

Car: With our recommendations in place, overall costs, including environmental damage and accident costs, would fall slightly. Infrastructure charges and environmental damage charges would amount to $14 per traveller, or an increase of $8 on average per traveller over the equivalent charges (the special tax of $6) in 2000 S-Q. If this increase were charged entirely as a fuel tax, it would amount to 25 cents per litre of gasoline at current fuel consumption rates (our estimates of costs per traveller assume an average of 1.8 travellers per car).

Bus: As a result of deregulation and the elimination of cross subsidization through fares, total costs to users would fall by 15 percent from 2000 S-Q, becoming $34 per trip.

Airplane: More economical operation of airports and the air navigation system between the 2000 S-Q and 2000 D scenarios would reduce infrastructure costs by 18 percent. Eliminating the $10 subsidy from others for airport and air navigation infrastructure in 2000 S-Q would then require only a $4 increase in infrastructure charges, to $28, in 2000 D. The environmental charge of $4 compares with $3 in special taxes to users in the 2000 S-Q scenario.

Train: Cost recovery in 2000 S-Q would still be only about half of that required for viability, and in 2000 D, train vehicle/carrier subsidies would have decreased over a transition period. We believe, however, that there is a potential for train travel to succeed with our recommendations in place. Improved speed, comfort and service are possible on this route. Train travel could become attractive even at much higher fares. Total infrastructure and vehicle/carrier costs would increase 15 percent to $136 per trip ($25 + $111), but there would also be an increase in total revenues per user from $57 to $119. The 2000 D fare would still be $41 less than the air fare ($160 – $119). The taxpayer vehicle/carrier subsidy, which would not be completely phased out by 2000, would cover the difference of about $21 per trip.

ROUTE #3: CHURCHILL TO WINNIPEG

Churchill to Winnipeg: 1991 Costs

This remote route is of interest because it includes a substantial community that cannot be reached by car. Travellers from Churchill must use an airplane or train to reach Winnipeg. The costs of these modes today are:

Airplane: Users pay a total of $262 in air fare, while others pay $280 for the costs of the air infrastructure, particularly the Churchill airport. The total cost by air is $530 per trip.

Train: Users pay $229 in fares. The taxpayer contributes $2,749 per passenger to the trip — more than ten times as much as is paid by the traveller — and the total cost is almost $3,000 per passenger.

Churchill to Winnipeg: 2000 Status Quo

Projected growth in air traffic for 2000 S-Q would reduce the cost of the airport and the air navigation system, when averaged over more passengers, but the total infrastructure cost would still be $217 per passenger. We do not foresee any decrease in costs or increase in revenues for rail service.

Churchill to Winnipeg: 2000 Directions

For the 2000 D model, our assumptions for this type of route are as follows:

Airplane: Based on costs at similar non-Transport Canada airports, we believe that scaling the Churchill airport down to a size adequate to handle forecast demand, and allowing management to pursue efficiency, would reduce the total air infrastructure costs. The historical capital costs associated with the larger airport would not determine pricing during the transition. Rather, pricing would cover new capital spending to maintain the smaller airport. The reduced infrastructure costs would still be high compared with system-average airport costs,

Table 18-3

Illustrative Comprehensive Costs per Passenger in 1991, 2000 "Status Quo" and 2000 "Directions" — Route #3, Churchill to Winnipeg

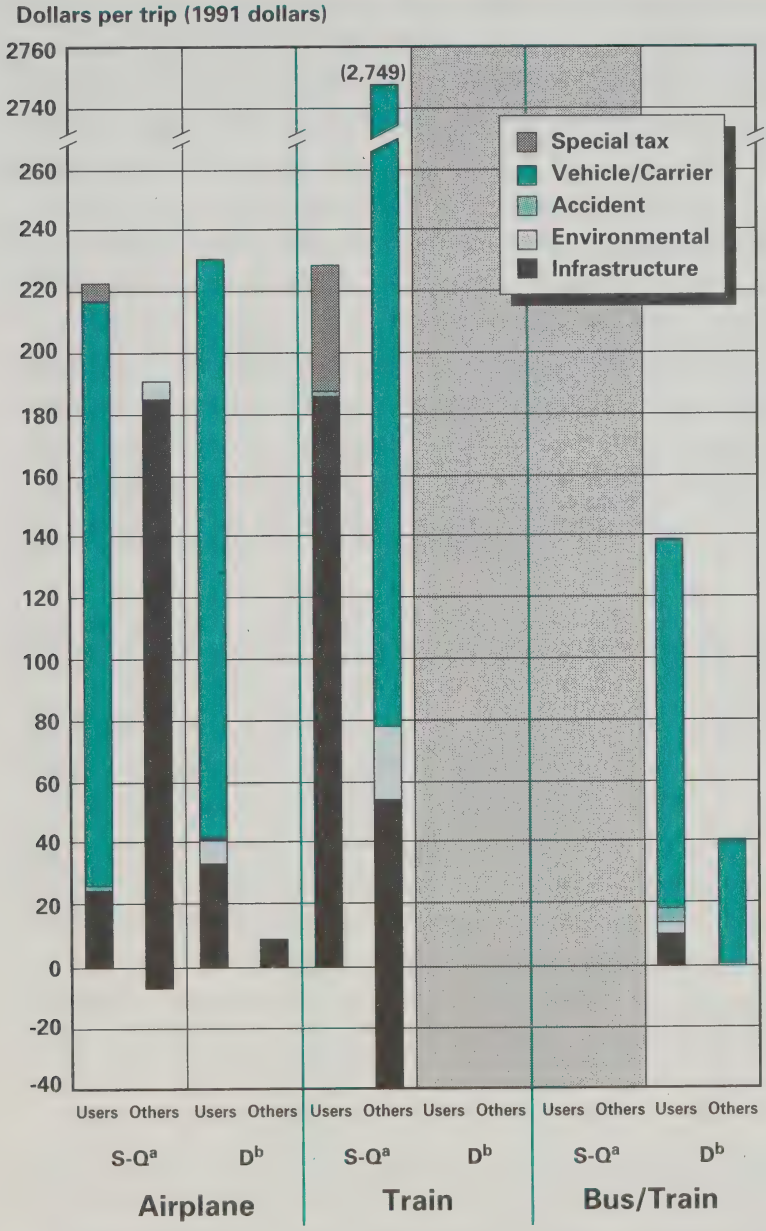
Dollars per trip, in 1991 dollars									
	Airplane 1991			Airplane 2000 S-Q			Airplane 2000 D		
Type of cost	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	28	280	308	25	192	217	34	9	43
Environmental	0	7	7	0	6	6	6	0	6
Accident	1	0	1	1	0	1	1	0	1
Special tax/fee	8	–8	0	7	–7	0	0	0	0
Vehicle/Carrier	225	–11	214	190	0	190	190	0	190
Total	**262**	**268**	**530**	**223**	**191**	**414**	**231**	**9**	**240**
	Train 1991			Train 2000 S-Q			Train 2000 D[a]		
Type of cost	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	186	94	280	186	94	280			
Environmental	0	23	23	0	23	23			
Accident	2	0	2	2	0	2			
Special tax/fee	41	–41	0	41	–41	0			
Vehicle/Carrier	0	2,673	2,673	0	2,673	2,673			
Total	**229**	**2,749**	**2,978**	**229**	**2,749**	**2,978**			
	Bus–Train 1991			Bus–Train 2000 S-Q			Bus–Train 2000 D[b]		
Type of cost	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure							10	0	10
Environmental							4	0	4
Accident							4	0	4
Special tax/fee							0	0	0
Vehicle/Carrier							121	40	161
Total							**139**	**40**	**179**

a. It is reasonable to predict that this rail service would be discontinued before 2000.
b. The bus–train service is shown as an alternative to air travel, presuming the through train service was discontinued.

Note: In order to illustrate smaller components, route totals are shown to the nearest dollar. In general, cost estimates are not accurate to this level of precision. See text for qualifications.

Chart 18-3

Illustrative Comprehensive Costs per Passenger, Projected to 2000, Churchill to Winnipeg



a. S-Q is status quo for year 2000.
b. D is with the recommendations in "Directions" implemented in 2000.

Note: The chart is a graphic representation of Table 18-3. Any negative components of costs borne by others are represented by shifting the others bar below the zero line.[1]

but a major improvement over those shown in 2000 S-Q. Charging this amount to air travellers would constitute a steep increase in infrastructure charges to users (Recommendation 5.2) and result in a (decreasing) transitional subsidy from others, illustrated by the $9 shown in the table. Total infrastructure costs would be $43. The total fare paid by air travellers would rise from $223 in 2000 S-Q to $231.

Train: Since train service will never approach self-sufficiency on this route, we predict that the current service would be discontinued before 2000; we therefore show no figures for standard rail service in 2000 D. We searched for an alternative that passengers could afford and that did not impose such large costs on the taxpayer. Passengers from smaller communities along the rail line from Gillam to Churchill can be reliably served only by the train; the airplane-only option is restricted to residents of Churchill itself. We therefore developed a model for a bus-train intermodal system that would be effective and reasonably priced.

Bus-Train: There is bus service from Winnipeg to Gillam, 265 kilometres south of Churchill. This bus service combined with a mixed train (offering coach and freight services) would provide transportation to Churchill. Although the train segment of this bus-train service would lack the comforts of the present sleeper service (meal and beverage amenities), the distance and time involved would be much less. Such a service could achieve, or come much closer to achieving, full cost recovery. It is another example of when a transitional subsidy would be warranted. This is represented by a $40 others' contribution to vehicle/carrier costs. The subsidy would be payable on the Gillam to Churchill segment of the route. The total cost would be $179 per passenger.

Other alternatives: The very small population that lives along the rail line from Gillam to Churchill could also be served from Winnipeg by air to Gillam or Churchill and by the revised train service discussed earlier.

ROUTE #4: HALIFAX TO ST. JOHN'S

This route involves crossing between Nova Scotia and Newfoundland by air or by one of the two ferries: the year-round service between North Sydney, Nova Scotia, and Port aux Basques, Newfoundland, or the summer service between North Sydney, Nova Scotia, and Argentia, Newfoundland.

The combined road and ferry distances differ greatly between these two routes.

- Using the Port aux Basques ferry, the crossing is 178 kilometres and the road trip is 1,267 kilometres, for a total trip of 1,445 kilometres.
- Using the Argentia ferry, the crossing, which is 519 kilometres, reduces the road trip by 798 kilometres to 469 kilometres, for a total trip length of 988 kilometres.

With the exception of Halifax to Truro, no passenger rail services exist between Halifax and St. John's. The alternative means from Halifax to St. John's are airplane, bus-ferry or car-ferry. Table 18-4 illustrates five route combinations, including bus and car, using each of the two ferry routes.

Halifax to St. John's: 1991 Costs

Overall total costs per passenger-trip are:

- $214 by airplane;
- $333 by car-ferry using the Port aux Basques ferry;
- $292 by car-ferry using the Argentia ferry;
- $181 by bus-ferry using the Port aux Basques ferry; and
- $150 by bus-ferry using the Argentia ferry.

Table 18–4

ILLUSTRATIVE COMPREHENSIVE COSTS PER PASSENGER IN 1991, 2000 "STATUS QUO" AND 2000 "DIRECTIONS" — ROUTE #4, HALIFAX TO ST. JOHN'S

Dollars per trip, in 1991 dollars									
	Airplane 1991			Airplane 2000 S-Q			Airplane 2000 D		
Type of cost	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	25	21	46	25	7	32	24	0	24
Environmental	0	6	6	0	5	5	5	0	5
Accident	1	0	1	1	0	1	1	0	1
Special tax/fee	1	–1	0	1	–1	0	0	0	0
Vehicle/Carrier	157	4	161	141	0	141	141	0	141
Total	**184**	**32**	**214**	**168**	**11**	**179**	**171**	**0**	**171**
	Car + P-a-B[a] Ferry 1991			Car + P-a-B[a] Ferry 2000 S-Q			Car + P-a-B[a] Ferry 2000 D		
Type of cost	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	0	30	30	0	30	30	31	–5	26
Environmental	0	9	9	0	8	8	7	0	7
Accident	48	1	49	43	1	44	44	0	44
Special tax/fee	15	–15	0	15	–15	0	0	0	0
Vehicle/Carrier	181	64	245	178	64	242	198	20	218
Total	**244**	**89**	**333**	**236**	**88**	**324**	**280**	**15**	**295**
	Car + Argentia Ferry 1991			Car + Argentia Ferry 2000 S-Q			Car + Argentia Ferry 2000 D		
Type of cost	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	0	32	32	0	32	32	31	–2	29
Environmental	0	12	12	0	12	12	10	0	10
Accident	18	0	18	16	0	16	16	0	16
Special tax/fee	6	–6	0	6	–6	0	0	0	0
Vehicle/Carrier	150	80	230	148	80	228	167	25	192
Total	**174**	**118**	**292**	**170**	**118**	**288**	**224**	**23**	**247**

Table 18–4 (cont'd)

Illustrative Comprehensive Costs per Passenger in 1991, 2000 "Status Quo" and 2000 "Directions" — Route #4, Halifax to St. John's

Dollars per trip, in 1991 dollars									
	Bus + P-a-B Ferry 1991			Bus + P-a-B Ferry 2000 S-Q			Bus + P-a-B Ferry 2000 D		
Type of cost	Users	Others	Total	Users	Others	Total	Users	Others	Total
Infrastructure	0	12	12	0	12	12	11	0	11
Environmental	0	3	3	0	3	3	3	0	3
Accident	5	0	5	5	0	5	5	0	5
Special tax/fee	3	–3	0	3	–3	0	0	0	0
Vehicle/Carrier	106	55	161	106	55	161	135	7	142
Total	**114**	**67**	**181**	**114**	**67**	**181**	**154**	**7**	**161**
	Bus + Argentia Ferry 1991			**Bus + Argentia Ferry 2000 S-Q**			**Bus + Argentia Ferry 2000 D**		
Type of cost	**Users**	**Others**	**Total**	**Users**	**Others**	**Total**	**Users**	**Others**	**Total**
Infrastructure	0	25	25	0	25	25	23	0	23
Environmental	0	5	5	0	5	5	4	0	4
Accident	2	0	2	2	0	2	2	0	2
Special tax/fee	2	–2	0	2	–2	0	0	0	0
Vehicle/Carrier	87	31	118	87	31	118	87	12	99
Total	**91**	**59**	**150**	**91**	**59**	**150**	**116**	**12**	**128**

a. Port aux Basques.

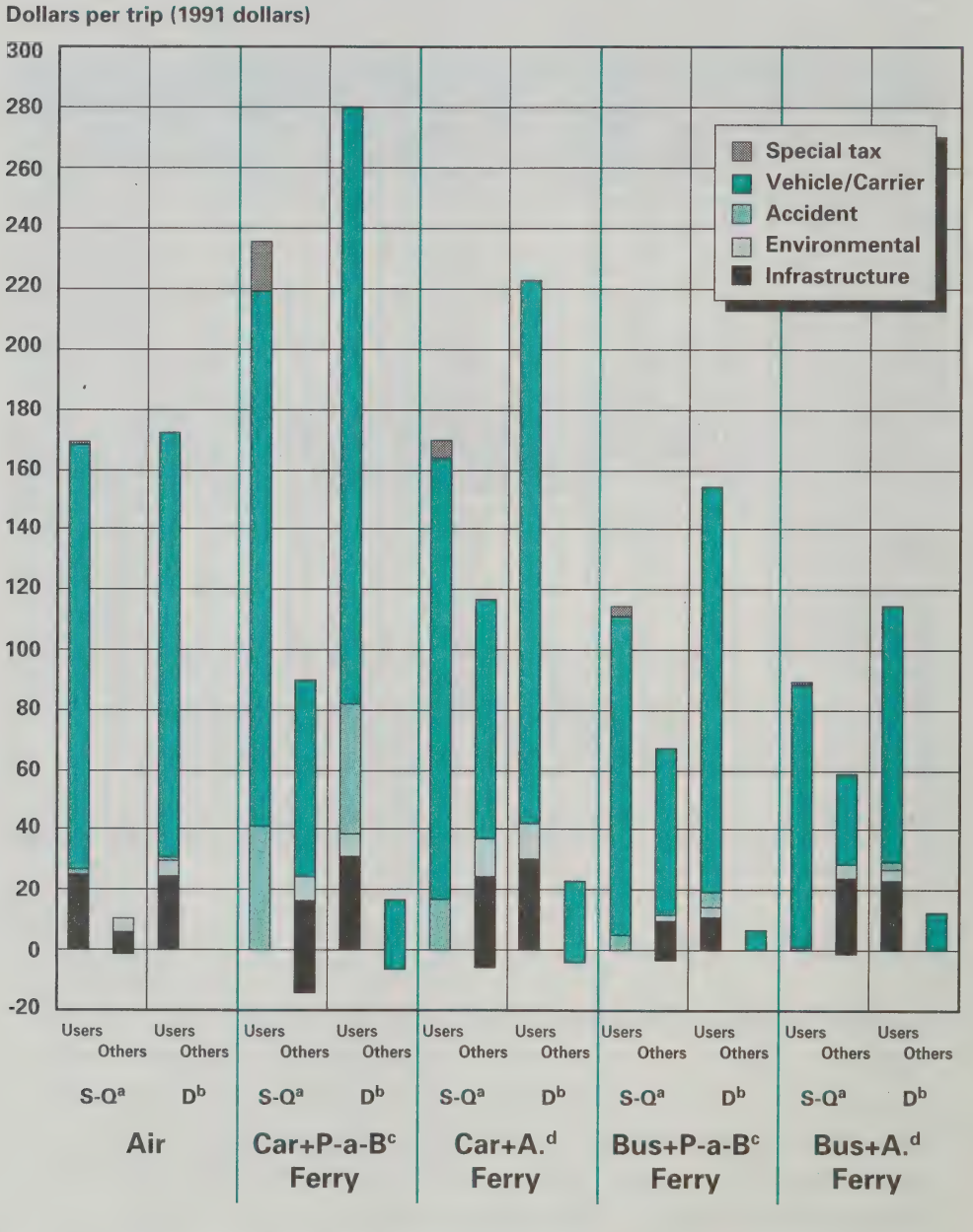
Note: In order to illustrate smaller components, route totals are shown to the nearest dollar. In general, cost estimates are not accurate to this level of precision. See text for qualifications.

In more detail, they are:

Airplane: Users pay an average fare of $184 for this type of route. Taxpayers pay $21 for unrecovered airport and air navigation infrastructure costs, and the public bears $6 in environmental damage. One dollar is recovered in fuel tax, and air passengers on other routes pay $4 in a cross subsidy to vehicle/carrier costs. The total contributed by others is $30 per passenger.

Car-ferry using the Port aux Basques ferry: (For this and the following three trips, the text reports some costs for the modal segments that are not shown in the table.) Average costs per traveller for the road

Chart 18-4
Illustrative Comprehensive Costs per Passenger, Projected to 2000, Halifax to St. John's



a. S-Q is status quo for year 2000.
b. D is with the recommendations in "Directions" implemented in 2000.
c. Port aux Basques.
d. Argentia.

Note: The chart is a graphic representation of Table 18-4. Any negative components of costs borne by others are represented by shifting the others bar below the zero line.[1]

segments of the trip are $213, of which $13 is borne by others in unrecovered infrastructure and environmental damage costs.

Others contribute considerably to the ferry portion of the trip. While a user pays $44 for the ferry, federal taxpayers contribute an estimated $8 for such infrastructure as coast guard and navigation aids on this route. In addition, the direct vehicle/carrier subsidy to the carrier from federal taxpayers is $64 per car traveller. Combining the car and ferry costs, travellers pay a total of $244 and others pay $89.

Car-ferry using the Argentia ferry: Costs for the road portions of the trip are $78; travellers pay all but $4. Of total ferry costs of $214, travellers pay $100 and others pay $80 in direct subsidy. In addition, others pay $24 in infrastructure costs and $10 in environmental damage for the ferry crossing. In combination, travellers pay $174 and others pay $118 of the total cost of $292 per passenger.

The Argentia route is advantageous to travellers to St. John's. It costs less than the Port aux Basques route when all car costs are included and eliminates 800 kilometres of driving. This route, however, costs the taxpayer more than the Port aux Basques route with current pricing and subsidy policies. Travellers currently pay less on the Argentia ferry route than if they were travelling by airplane, although the full costs per passenger for the trip are much lower by airplane.

Bus-ferry using the Port aux Basques ferry: To use this route, travellers must take a bus in Nova Scotia operated by a private carrier and cross Newfoundland on the Crown-owned CN Roadcruiser bus. Although we estimated the average fares from actual 1992 full-fare figures, the bus costs in the table are not those of any of the carriers involved but generic costs estimated from data for a number of carriers. Our table reflects a $33 vehicle/carrier subsidy from passengers on other routes and from bus carrier losses (borne by shareholders, which in CN's case is the federal government) and an estimated total bus fare of $99. The traveller pays $15 of the ferry service.

Taxpayers contribute $8 to marine infrastructure costs and pay a vehicle/carrier subsidy of $22. Including all components, total ferry costs are $46.

Combined fares for the bus and ferry portions of the trip are $114 paid by passengers, toward a total cost of $181 per passenger.

Bus-ferry using the Argentia ferry: Travellers also require bus service in Nova Scotia and Newfoundland for this trip. Both bus services are run by privately owned carriers; the Newfoundland run is much shorter than that required for travellers using the Port aux Basques ferry. The combined bus carriers' costs are estimated at $42 per trip, while the average bus traveller pays $45 in fares. Bus carriers use the extra $3 to cross subsidize passengers on other routes.

The traveller pays $42 in ferry costs. Taxpayers contribute $24 for marine infrastructure, and $34 in vehicle/carrier subsidies, for a total of $58. Together with environmental damage costs, total ferry costs are $106.

The combined fare for the bus and ferry portions of this trip is $91, while the total cost is $150.

Halifax to St. John's: 2000 Status Quo

Air infrastructure costs per passenger would fall as traffic increased at a greater rate than spending on airports and air navigation services. Airplane and car costs would also decline slightly as fuel consumption and emissions decreased and road accident costs fell. Costs of the bus and ferry services would remain the same.

Halifax to St. John's: 2000 Directions

When our recommendations are implemented, we expect the following changes in costs by mode:

Airplane: Airport and air navigation spending (infrastructure) would fall by 25 percent to $24 per passenger for this trip. Travellers would

pay all costs, including charges for infrastructure and environmental damage. Total costs per passenger would decline to $171. The total costs in the 2000 D case are expected to be almost the same as the traveller costs in the 2000 S-Q case.

Car: Car costs would change in the same proportions as those on the other routes. Road infrastructure costs would fall because only part of the growth in traffic would be met by increases in capital and operating spending. This is represented as a 5 percent decrease in infrastructure costs. The fuel tax would be changed into a road infrastructure charge and would almost double in order to cover costs throughout the road network. This increase, plus the charge to travellers for environmental damage, would bring a 10 percent reduction in environmental damage costs and the fuel component of vehicle/carrier costs.

Bus: Deregulation would encourage efficiency in operations and remove cross subsidization. Privatization or contracting for operation of the government-owned Newfoundland service could also result in cost reductions.

Ferry: With full cost recovery for navigation services and with transparency of cost-related decisions, we expect total costs for water infrastructure to fall 10 percent. The federal government would ensure full cost recovery in ferry financing by decreasing vehicle/carrier subsidies over the next 10 years. By 2000, subsidies would be only 25 percent of their 1991 levels, with elimination of remaining amounts scheduled for 2002 if that were consistent with continuing to meet Constitutional obligations to ensure service. Management would be directed to focus on efficiency. As a result, we expect ferry costs to fall 20 percent. Further, ferry users would not be charged with any extra costs associated with requirements to construct vessels in domestic shipyards.

In summary, under our recommendations the overall costs of the air, car-ferry and bus-ferry services would decrease notably. Most of the others costs would be paid by travellers. Total users' charges would therefore increase relative to the 2000 S-Q case from:

- $168 to $171 for airplane;
- $236 to $280 for car-ferry costs on the Port aux Basques route;
- $170 to $224 for car-ferry costs on the Argentia route;
- $114 to $154 for bus-ferry costs on the Port aux Basques route; and
- $91 to $116 for bus-ferry costs on the Argentia route.

Total System Costs

Illustrating the effects of our recommendations on the four routes gives some idea of the way we expect our recommendations to affect travellers using different routes and modes. To understand how our recommendations would affect the economy and taxpayers in general, it is also necessary to attempt to approximate the total effects.

We have done this using three tables:

Table 18-5: Total costs for Canada's intercity passenger transportation system projected to the year 2000, presuming no substantial adjustment in current transportation policy (the 2000 S-Q case). The table includes the costs for each means of travel and for total intercity travel.

Table 18-6: Total costs projected to the year 2000 after governments implement our recommendations (the 2000 D case). The table includes the costs for each means and for total intercity travel.

Table 18-7: Shows the 2000 D costs less the 2000 S-Q costs; this is an indication of the impact of the recommendations on the costs for each means of travel and for total intercity travel.

The tables are set up in a similar fashion to those for the illustrative routes. For the different components of transportation costs (infrastructure, environmental, accident, special taxes/fees and vehicle/carrier), the first and second columns indicate who pays — users and others including both the taxpayers and the public. The third column is the sum of the first two. The amounts in all tables are in 1991 dollars.

TOTAL COSTS IN THE 2000 STATUS-QUO CASE: TABLE 18-5

We based our calculations on simple projections of traffic growth from 1991 to 2000, consistent with those for the illustrative routes. For example:

- car and airplane travel will grow by 30 percent;[3]
- ferry travel will grow by 30 percent;[4] and
- bus and train travel will not change.[5]

As with the illustrative routes, we calculated total system costs to reflect the expectation that the average cost per passenger-kilometre will fall by the year 2000 due to trends in technology and traffic growth. For example (all references are per passenger-kilometre):

- fuel consumption will decrease by 13 percent for cars and 15 percent for airplanes;
- environmental damage from cars will drop by 20 percent, and from airplanes by 25 percent;
- accident costs for cars and buses will fall 10 percent;
- carrier operating costs for trains will be reduced by 5 percent;
- average costs of airport and air navigation infrastructure will decrease as use of the existing capacity grows; and
- ferry costs remain unchanged for the individual services, but the average declines slightly due to the faster growth in traffic on the lower cost services.

The result of these changes will be that total costs per passenger-kilometre fall by 3 percent for travel by car, 4 percent for train, 15 percent for airplane, 3 percent for ferry and remain unchanged for bus. Of course, with increases in traffic, the total amount spent on domestic passenger transportation will rise substantially between 1991 and 2000.

Table 18-5

ILLUSTRATIVE SYSTEM-WIDE ANNUAL COSTS OF INTERCITY DOMESTIC TRAVEL IN 2000 "STATUS QUO"

Totals: $ millions, in 1991 dollars

Type of cost	Car (270 billion pass-km)			Bus (3.3 billion pass-km)		
	Users	Others	Total	Users	Others	Total
Infrastructure	0	5,769	5,769	0	10	10
Environmental	0	1,247	1,247	0	8	8
Accident	9,213	202	9,415	12	0	12
Special trans. tax/fee	3,199	–3,199	0	9	–9	0
Vehicle/Carrier	28,954	0	28,954	277	8	285
Total	**41,366**	**4,019**	**45,385**	**298**	**17**	**315**

Type of cost	Airplane (33 billion pass-km)			Train (1.4 billion pass-km)		
	Users	Others	Total	Users	Others	Total
Infrastructure	723	701	1,424	45	0	45
Environmental	0	266	266	0	9	9
Accident	33	0	33	3	0	3
Special trans. tax/fee	165	–165	0	6	–6	0
Vehicle/Carrier	4,127	0	4,127	99	435	534
Total	**5,048**	**802**	**5,850**	**153**	**438**	**591**

Type of cost	Ferry (1.1 billion pass-km)			All intercity travel (310 billion pass-km)		
	Users	Others	Total	Users	Others	Total
Infrastructure	0	52	52	768	6,532	7,300
Environmental	0	22	22	0	1,552	1,552
Accident	1	0	1	9,262	202	9,464
Special trans. tax/fee	10	–10	0	3,389	–3,389	0
Vehicle/Carrier	264	113	377	33,721	556	34,277
Total	**275**	**177**	**452**	**47,140**	**5,453**	**52,593**

Note: **In order to illustrate smaller components, figures are shown to the nearest $ million. In general, cost estimates are not accurate to this level of precision. See text.**

TOTAL COSTS WITH OUR RECOMMENDATIONS IMPLEMENTED: TABLES 18-6 AND 18-7

The passenger transportation system would be fairer for all Canadians after our recommendations are implemented. Travellers would pay all the costs of their travel, including the costs of the damage they cause to the environment and of accidents. The result would be that most travellers would pay more for travel but this would be more than balanced by the reductions in what general taxpayers and the public would pay to support the passenger transportation system, reflecting a reduction in total costs — including environmental costs.

Putting our recommendations in place would cause changes in amounts of travel, varying by the means of transportation. With the increase in car and air costs to travellers, some reduction in use of these means is expected. With the increase in the price to the traveller of car and air travel, and reduction in price and improvement in service of main-route bus travel, some increase in use of the bus is expected. With only small percentage shifts from car and airplane to bus, more than a doubling in the use of intercity bus is entirely possible. Some increase in train travel on the remaining routes may be achieved through better service, in spite of the increase in fares. Ferry travel will tend to be reduced by higher fares, although it is not likely to be very responsive to price.

It is easier, however, to make and interpret cost comparisons under the assumption that traffic patterns and levels do not change from the 2000 S-Q to the 2000 D case. The figures in tables 18-6 and 18-7 for the different means of transportation are calculated using this assumption, with the exception that total train passenger-kilometres are reduced by 50 percent, reflecting our prediction that a number of passenger rail services would cease to operate as the subsidy is reduced. These figures are used in discussing changes in costs for the individual means of travel.

Table 18-6

Illustrative System-Wide Annual Costs of Intercity Domestic Travel in 2000 "Directions"

Totals: $ millions, in 1991 dollars

Type of cost	Car (270 billion pass-km)			Bus (3.3 billion pass-km)		
	Users	Others	Total	Users	Others	Total
Infrastructure	5,491	0	5,491	9	0	9
Environmental	1,122	0	1,122	6	0	6
Accident	9,414	0	9,414	12	0	12
Special trans. tax/fee	0	0	0	0	0	0
Vehicle/Carrier	28,480	0	28,480	237	5	242
Total	**44,507**	**0**	**44,507**	**264**	**5**	**269**

Type of cost	Airplane (33 billion pass-km)			Train (1.4 billion pass-km)		
	Users	Others	Total	Users	Others	Total
Infrastructure	1,133	40	1,173	32	0	32
Environmental	253	0	253	4	0	4
Accident	33	0	33	1	0	1
Special trans. tax/fee	0	0	0	0	0	0
Vehicle/Carrier	4,127	0	4,127	181	60	241
Total	**5,546**	**40**	**5,586**	**218**	**60**	**278**

Type of cost	Ferry (1.1 billion pass-km)			All intercity travel (310 billion pass-km)		
	Users	Others	Total	Users	Others	Total
Infrastructure	47	0	47	6,725	40	6,765
Environmental	17	0	17	1,405	0	1,405
Accident	1	0	1	9,470	0	9,470
Special trans. tax/fee	0	0	0	0	0	0
Vehicle/Carrier	320	28	348	33,411	93	33,504
Total	**385**	**28**	**413**	**51,011**	**133**	**51,144**

Note: In order to illustrate smaller components, figures are shown to the nearest $ million. In general, cost estimates are not accurate to this level of precision. See text.

Costs for means of travel do not sum to costs for all intercity travel, as the latter also includes allowance for costs of increased car, bus and airplane travel to replace assumed reduction in rail travel between 2000 S-Q and 2000 D cases. See text.

Table 18-7

Illustrative System-Wide Annual Costs of Intercity Domestic Travel, Changes Brought by Implementing "Directions" Compared with the "Status Quo"

Totals: $ millions, in 1991 dollars

Type of cost	Car			Bus		
	Users	Others	Total	Users	Others	Total
Infrastructure	5,491	–5,769	–278	9	–10	–1
Environmental	1,122	–1,247	–125	6	–8	–2
Accident	201	–202	–1	0	0	0
Special trans. tax/fee	–3,199	3,199	0	–9	9	0
Vehicle/Carrier	–474	0	–474	–40	–3	–43
Total	**3,141**	**–4,019**	**–878**	**–34**	**–12**	**–46**

Type of cost	Airplane			Train		
	Users	Others	Total	Users	Others	Total
Infrastructure	410	–661	–251	–13	0	–13
Environmental	253	–266	–13	4	–9	–5
Accident	0	0	0	–2	0	–2
Special trans. tax/fee	–165	165	0	–6	6	0
Vehicle/Carrier	0	0	0	82	–375	–293
Total	**498**	**–762**	**–264**	**65**	**–378**	**–313**

Type of cost	Ferry			All intercity travel		
	Users	Others	Total	Users	Others	Total
Infrastructure	47	–52	–5	5,957	–6,492	–535
Environmental	17	–22	–5	1,405	–1,552	–147
Accident	0	0	0	208	–202	6
Special trans. tax/fee	–10	10	0	–3,389	3,389	0
Vehicle/Carrier	56	–85	–29	–310	–463	–773
Total	**110**	**–149**	**–39**	**3,871**	**–5,320**	**–1,449**

Note: In order to illustrate smaller components, figures are shown to the nearest $ million. In general, cost estimates are not accurate to this level of precision. See text.

Costs for means of travel do not sum to costs for all intercity travel, as the latter also includes allowance for costs of increased car, bus and airplane travel to replace assumed reduction in rail travel between 2000 S-Q and 2000 D cases. See text.

It would be inappropriate to compare total passenger transportation costs for all means of travel in the 2000 S-Q and the 2000 D cases on this basis, because no allowance is made for replacement of the reduced train travel. Thus the estimates for costs of all intercity travel in tables 18-6 and 18-7 are calculated using the illustrative assumption that the entire reduction in rail travel shifts to other means: car, bus and airplane travel are each increased by one third of the reduction in train passenger-kilometres.

Car Travel

Drivers and owners will pay the full costs of travelling by car. The results:

- *Infrastructure:* Charges to users would be about $5.5 billion, replacing the special transportation taxes/fees, which we estimate at $3.2 billion for 2000 S-Q. This increase is the amount we expect (by our rough calculations) to be needed in the long term to recover all of the costs of building and maintaining roads, including the costs of land and an interest charge on capital. In addition, the total costs of roads will fall by about 5 percent ($278 million), relative to the 2000 S-Q case. In 2000 S-Q, we assumed that road infrastructure expenditures would be increased in proportion to traffic, but in the 2000 D case — where more careful scrutiny of the benefits and costs of expenditures would be given in improving and extending the highway network — we assume that expenditures will need to increase less than proportionately to traffic growth over this period.

Once our entire framework is in place, with investment decisions and pricing designed as we suggest, the annual revenues would, on average, equal the annual costs. In particular years, however, there might be substantial cash surpluses or cash requirements due to the irregularity of road construction. During early years, our proposed pricing based on the annual costs of the existing highway network might generate considerable cash surpluses. Such prices, however, would be intended to provide an appropriate measure of the long-run costs

of the different means of passenger transportation, and to provide the road agencies with information on which to base investment decisions. Interim surpluses, not required for long-term network expansion, would represent a return to governments on past investment.

- *Environmental costs:* Car users will pay about $1.1 billion for the damage they cause to the environment. Emissions will decline due to decreasing fuel consumption, and environmental costs will fall by 10 percent ($125 million).
- *Accident costs:* Car users will pay directly for that portion of total accident costs previously borne by taxpayers through general taxes and/or health care premiums.
- *Vehicle/carrier costs:* These costs will fall by about 1.5 percent ($474 million) due to the reduction in fuel consumption.

The overall result of the implementation of our recommendations for car travel is as follows:

- users' costs will rise by $3.1 billion, or 8 percent;
- others will save $125 million because total environmental costs will decline by 10 percent, and about $1.1 billion which users will pay in environmental charges. Governments could use a part of the $1.1 billion for environmental clean-up and compensation, and the remainder (probably the larger part) to reduce general taxes. Others will also save $2.8 billion in previously hidden net subsidies (the excess of subsidies to infrastructure and accidents over special taxes); and
- total car costs will fall by $0.9 billion, or 2 percent.

It would be a natural extension to apply some or all aspects of the approach that we recommend for car travellers using highways, to cars using urban streets and secondary rural roads, and to trucks. The changes in costs for all users of all roads would be substantially larger than the changes discussed above.

Bus Travel

Competition among bus companies and discontinuation of cross-subsidized services on local routes where demand is insufficient to cover costs is projected to reduce carrier costs by 15 percent per passenger-kilometre.[6]

- *Infrastructure costs:* Charges to buses for use of roads are projected to be only slightly higher than the present special fuel tax. Per passenger-kilometre, costs should fall as average load factors improve.
- *Environmental costs:* These costs, and the charges to bus carriers, will amount to $6 million, or approximately 2 percent of total cost.

These increases in charges to bus travellers will be more than offset by decreases in bus carrier costs and therefore:

- bus traveller fares, which would now cover all infrastructure and environmental costs, will fall by 11 percent; and
- the total amount paid by others ($17 million) in 2000 S-Q will be reduced by $12 million, to $5 million in direct (transitional) subsidies.

Airplane Travel

Air carrier costs will remain the same, while changes in the operations of airports and air navigation services will stimulate innovation and efficiency. The costs of air travel are projected to change as follows:

- *Infrastructure costs:* Charges for airports and air navigation services paid by travellers will increase by about $400 million, or 1.3¢ per passenger-kilometre. Others will save about $650 million at this point in the phase-out of taxpayer subsidies. An 18 percent ($251 million) reduction in total airport and air navigation costs is projected.
- *Environmental costs:* Environmental charges and improved air traffic control are projected to achieve a 5 percent reduction in

emissions. Air travellers will pay about $250 million for the damage they cause to the environment.

The results of the implementation of our recommendations are that:

- travellers will pay $500 million, or 10 percent, more for airplane travel;
- costs of $750 million net of special charges, previously borne by taxpayers in airport and navigation service subsidies and by the public in environmental damage, will be eliminated; and
- total air travel costs will fall by 5 percent, or $250 million.

Train Travel

The rationalization of passenger rail service will be accompanied by a reduction of direct vehicle/carrier subsidies by others of $375 million. To the extent that the 2000 S-Q subsidies of $435 million include return on investment, and that rationalization may require write-offs and special payments, annual savings may be somewhat reduced in the short run from the levels shown.

Ferry Travel

Governments will phase out subsidies to ferry services over a 10-year period.

- *Infrastructure costs:* Transport Canada spending will decrease by 10 percent, with full cost-recovery from travellers. New charges to users will total $47 million, or $37 million more than the special tax/fee (fuel tax) that the charges replace.
- *Environmental costs:* Environmental charges will stimulate a 20 percent reduction in ferry emissions. Travellers will pay $17 million for the damage they cause to the environment.

Direct vehicle/carrier subsidies will fall by $85 million by 2000, leaving $28 million for subsidy for operations that year. East-coast ferry services, which require more subsidies than those on the west coast, will be the most affected by the transfer of taxpayer-supported ferry costs to ferry travellers.

Our recommendations will encourage increased efficiency:

- charges to ferry travellers will rise by 40 percent ($110 million);
- savings to others will total $149 million; and
- ferry costs will fall by 9 percent ($39 million).

Total Intercity Travel

With our recommendations in place, there will be a transfer of costs from taxpayers to travellers using the passenger transportation system. Allowing for the replacement of the least competitive half of rail passenger-kilometres by car, bus and air travel:

- *Users:* Travellers will pay $6.0 billion per year more in infrastructure charges, $1.4 billion in environmental damage charges and $200 million in accident charges. Travellers will save $3.4 billion in special taxes (mostly fuel taxes) and more than $300 million in vehicle/carrier costs. Total net costs for travellers will therefore increase by $3.9 billion.
- *Others:* General taxpayers will save $6.5 billion per year in subsidies for transportation infrastructure (mostly roads and airports). In addition, general taxpayers will gain $1.4 billion because of charges for environmental damage, some of which may be used to compensate for environmental damage losses. The public will gain about $150 million in reduced environmental damage. Others will also save $200 million in health care for accident victims. After subtracting $3.4 billion in revenues because special taxes on travellers no longer exist, and after including $500 million saved due to discontinuing subsidies to trains and ferries, the general taxpayer/general public saves $5.3 billion.

Conclusion

Our illustrative estimates in this chapter have been intended to provide:

- an impression of the extent to which the change in how Canadians pay for transportation would raise costs to Canadians when they travel — on illustrative routes and in general — at the same time that it reduces costs to Canadian taxpayers; and
- an impression of the potential for reducing overall costs as a result of implementing our recommendations.

With all our recommendations in place, there will be annual savings in most types of transportation costs that could be in the order of:

- $500 million in infrastructure costs;
- about $150 million in environmental damage costs; and
- $800 million in vehicle use and carrier costs.

Total cost of intercity passenger travel would fall by 3 percent, or $1.4 billion per year.

ENDNOTES

1. As set out in Endnote 1 to Chapter 3, for individual routes, cross subsidies as well as special transportation taxes/fees are potential negative components of others' costs.

   When users pay more than the vehicle/carrier costs (or — in the 2000 D case — than the infrastructure costs) associated with the route used, the excess is considered a contribution from users to others (other travellers). When this occurs, the base of the others bar is shifted below the zero line by an amount equal to the sum of revenues from special taxes and fees (a negative component of others costs) and of negative cross subsidies (cross subsidies available for other travellers).

   For example, for bus travel on the Toronto to Montreal route (Table 18-2 and Chart 18-2), in the 2000 S-Q case the others bar starts at –4, the sum of –1 from special taxes and –3 from cross subsidy.

   Only the positive components of others' costs are shown as explicit segments of the bar. For Toronto to Montreal bus travel, the positive components sum to 1, which is the vertical height of the bar above its –4 base.

   In a few cases for the individual routes, the negative components exceed the positive components of costs borne by others, resulting in negative net costs. In such cases, the top of the others bar, which indicates net costs borne by others, is below the zero line. For example, again for Toronto to Montreal bus in the 2000 S-Q travel case, Table 18-2 shows net costs borne by others of –3. The top of the others bar for bus travel in Chart 18-2 S-Q thus lies below the zero line at –3.

   As well, for car travel in certain of the 2000 D cases, the only non-zero component of others' costs appears in the infrastructure row, and is negative if infrastructure users on this route are paying "extra" to cover costs of lower volume routes. In other words they are covering a cross subsidy to car travellers on lower volume routes. In such cases, the others' costs are represented by a line that lies below the zero line at the level of (negative) net others' costs on this route. For example, the –5 infrastructure costs, and net costs, for others in Table 18-2 for car travellers from Toronto to Montreal in the 2000 D case, is represented by a line in Chart 18-2 lying below the zero line at –5.

2. The $35 shortfall below average cost does not mean that the carrier would be better off dropping the service. Rather, jet operations of this length do not contribute as greatly to airline fixed costs and profits as do longer journeys. There is competition from car, bus and train, as well as from other air carriers on routes of this type. Therefore, it is not surprising that profitability might be below the system average.

3. Growth of 30 percent to the end of the decade amounts to about 3 percent annually, consistent with what is believed (in the absence of national statistics) to have occurred in total car traffic during the 1980s; and consistent also with Transport Canada's prediction for domestic air passengers to 2000.

4. The annual number of ferry passengers grew between 1980 and 1988 by 10.5 percent on the east-coast services and by 46 percent on west-coast services.

5. These types of traffic have seen inconsistent fluctuations in the last two decades. For both, passengers carried increased in the late 1970s and early 1980s. A gradual decline followed in train traffic, with a sharp reduction in traffic following the service cuts in 1990. Bus traffic has also declined substantially since 1982.

6. This system average reduction of 15 percent differs from the 10 percent reduction assumed for the higher volume intercity routes shown in Tables 18-1, 18-2 and 18-4. The latter primarily reflects assumed reduction in average operations costs per passenger on given services. The assumed system average reduction, however, is also substantially influenced by the anticipated improvement in average load factor (passenger-kilometres per available seat-kilometre) across the system as a whole. This will result from the discontinuation of cross subsidized services, and particularly from schedules and the use of equipment better matched to lower volume routes.

CHAPTER 19

REACHING OUR DESTINATION: A PASSENGER TRANSPORTATION FRAMEWORK FOR THE 21ST CENTURY

INTRODUCTION

In Chapter 4, we set out the foundations for a new passenger transportation framework. These foundations included a goal and four objectives along with principles for travellers, carriers and the providers of infrastructure — terminals, links and traffic control services. We also discussed the implications for governments and the transition mechanisms needed to help travellers, carriers and infrastructure providers adjust to a new framework based on these foundations.

In Chapters 5 to 16, we made recommendations that will enable governments to bring current passenger transportation policy into line with our goal, objectives and principles.

In this chapter, we repeat our principles from Chapter 4 and summarize our recommendations with respect to each principle. This provides a comprehensive list of the changes that we recommend. These changes, when implemented into laws, regulations and institutional adjustments, will result in a new passenger transportation framework for the 21st century. We conclude with a discussion on how these changes will meet our objectives.

ACHIEVING OUR FRAMEWORK

In this section, we restate our principles and summarize the changes that we recommend for their implementation. We do not intend this list of changes to be a menu from which to pick and choose. Our recommendations are interrelated and their positive impacts must be combined to put our framework into effect.

CHANGES FOR TRAVELLERS

Paying the Full Costs of Travel

Each traveller will pay the full cost of his or her travel, and travellers, in total, will pay the full cost of the passenger transportation system, including those costs related to protecting the environment, safety and accidents.

(Recommendation 4.3)

Taxpayers will not subsidize travellers. Rather, travellers using a public mode of transportation will pay fares sufficient to cover their share of the carrier's full cost of providing services, including the cost of terminals, links and traffic control. Similarly, private-car and private-airplane operators will pay taxes or charges sufficient to cover their share of the full cost of terminals, links and traffic control. Travellers will also pay, through either a portion of their fare, a tax or a charge, for any environmental damage they cause and for all safety and accident costs associated with their travel.

Specifically:

- Charges for environmental damage will include the costs of clean-up and mitigation, administration of policies and regulations, compensation to those affected and a best estimate of damage where compensation cannot be made.
  (Recommendation 7.4)
- Where environmental goals have been established in the absence of reliable information on damage costs, governments will set environmental charges and/or regulations at a level expected to induce the behavioural change needed to meet such goals.
  (Recommendation 7.5)

- Charges for safety and accident costs will include the cost of safety services provided by governments, and health care costs currently borne by the health insurance system.
  (Recommendation 8.1)

Access for People with Disabilities

Travellers with physical or mental disabilities will have opportunities similar to those enjoyed by all Canadians to use public passenger transportation.

(Recommendation 4.4)

While governments and industry have taken important steps to provide access to intercity passenger transportation services for people with disabilities, our approach will go further. Carriers and providers of infrastructure will be required to take greater responsibility to provide accessible passenger transportation.

Specifically:

- Governments will establish a goal that all travellers in Canada have access to public transportation in a safe, reasonably comfortable and dignified fashion, irrespective of physical or mental ability.
  (Recommendation 9.1)
- Carriers and providers of infrastructure will decide how best to meet performance standards that provide improved accessibility for people with disabilities and will do this within a reasonable period of time.
  (Recommendation 9.5)
- Carriers and providers of infrastructure will begin immediately to ensure that their specifications for new equipment and infrastructure provide continuing improvements in accessibility, and will

implement, where practicable, retrofitting programs for their equipment and infrastructure.
(Recommendation 9.3)

- Groups representing people with disabilities, carrier associations and the National Transportation Agency will jointly establish a mechanism, such as a coded identification card system, that will enable carrier personnel to quickly identify the kinds of services and facilities needed by each traveller with a disability, including whether or not the traveller requires an attendant for safety or other reasons.
(Recommendation 9.6)

- When the National Transportation Agency or a carrier decides that, for safety reasons, an attendant is needed during a trip to assist an individual with a disability, the attendant's fare will be borne by the carrier.
(Recommendation 9.8)

- Carriers will ensure that any personnel who might be required to assist travellers with disabilities are trained to deal with such travellers with sensitivity and understanding.
(Recommendation 9.9)

- Canadians with disabilities, governments, carriers and manufacturers, through advisory and coordinating groups, will ensure that new services, equipment and infrastructure adequately serve those for whom they are intended.
(Recommendation 9.11)

CHANGES FOR CARRIERS

Competition and market forces will be the prime agents in providing viable and efficient carrier services.

(Recommendation 4.5)

Carriers will provide services in a competitive environment, operating under the same commercial principles, economic forces and general rules as other businesses.

Governments will make the entry of new competitors into all carrier services easier by eliminating or easing restrictions. All potential entrants that are "fit, willing and able" will have an opportunity to supply passenger carrier services and have access to terminals, links and traffic control so long as they are prepared to pay their share of the costs, as well as any costs they impose with respect to environmental damage, safety and accidents. As well, anyone providing a carrier service will be able to withdraw these services, without undue delay, subject to adequate notice.

Specifically:

- Federal, provincial and territorial governments will amend their legislation concerning the regulation of intercity buses to reduce entry restrictions to "fit, willing and able" criteria, and require only public notice of route abandonments and publication of schedules and fares.
  (Recommendation 13.1)
- The federal government and the Government of Alberta will amend their legislation to eliminate the 10 percent ceiling on individual holdings that currently applies to Air Canada and Pacific Western Airlines, the parent of Canadian Airlines International.
  (Recommendation 11.2)
- The federal government will invite Canadian air carriers to make public proposals for future international air route designations, with the air carrier offering the best package to be granted the route and the reasons made public, and Canadian air carriers will be allowed to sell designated international routes to one another.
  (Recommendations 11.3 and 11.4)
- Governments will abstain from making any financial contribution that is intended to ensure the survival of air carriers.
  (Recommendation 11.5)

- The federal government will amend legislation to make rail track accessible to all qualified passenger carriers who are willing to pay for what they use and will ensure that all such carriers have access to essential rail infrastructure and are treated equally in the movement of their traffic.
  (Recommendation 6.7)

- After a 10-year transition period, all passenger train routes will be unsubsidized and open to any carrier who is "fit, willing and able."
  (Recommendation 12.4)

- Airport and municipal authorities will cooperate to ensure unrestricted access to airports by all ground connectors who pay their share of the costs, and the federal government will similarly grant all ground connectors open access to federally owned airports and rail stations.
  (Recommendation 15.1)

- The federal government will require that all agreements for the sale or lease of federally owned transportation infrastructure include provisions that oblige the operating authority to grant open access to all intermodal connectors on equal terms and conditions.
  (Recommendation 15.2)

Under current international arrangements, if a Canadian air carrier is no longer owned and controlled by Canadians, its designation as a "national airline" and, consequently, its ability to fly international routes, can be challenged. Although restrictions on ownership do not apply to other modes, we propose to limit foreign ownership for the Canadian air carrier industry because of the current international regulatory regime.

Specifically:

- The federal government will retain the existing limits on foreign ownership and control of air carriers.
  (Recommendation 11.1)

- If faced with a potential reduction to only one major Canadian air carrier, the federal government will override limitations on foreign ownership and control for the explicit purpose of, and to the extent required to, ensure competition in the domestic market. (Recommendation 11.6)

CHANGES FOR PROVIDERS OF INFRASTRUCTURE

Terminals, links and traffic control services will be priced on a terminal-by-terminal, link-by-link and service-by-service basis.

(Recommendation 4.6)

Where there is sufficient competition, or where users are in a strong bargaining position with providers of terminals, links or traffic control services — and so long as there are appropriate charges for environmental damage, safety and accidents — competition and market forces will determine prices and investment decisions for passenger transportation infrastructure.

(Recommendation 4.7)

Where regulations are required, they will be designed to ensure that pricing and investment decisions will be similar to what would otherwise occur through competitive market forces.

(Recommendation 4.8)

Setting Prices

Travellers will only pay for what they use. Prices will reflect the travellers' or carriers' use of each terminal, link or traffic control service and will be designed to encourage neither over-use nor under-use. Travellers using only some parts of the system will not pay for the

parts they do not use and from which they do not benefit. Where such prices will not recover the full cost, they will be adjusted to provide for full cost recovery in such a way as to minimize the loss of efficiency.

Specifically:

- Provincial and territorial governments and road agencies will consider conventional tolling systems when new or expanded limited-access highways are required, with tolls set to cover any costs of the road link in question that exceed those recovered by fuel taxes. (Recommendation 5.6)
- Provincial and territorial governments will institute weight-distance taxes for trucks as part of an overall road-financing program. (Recommendation 5.5)
- Airport operators will obtain their funding from site-specific charges on an airport-by-airport basis, rather than through an allocation from the Air Transportation Tax. Charges to travellers will reflect the commercial potential of the airport, not historical costs. (Recommendations 5.1 and 5.3)
- The operator of the air navigation system will obtain funding for the system by charging aircraft operators directly for their share of air navigation and air traffic control costs through charges that differ by type of flight, class of aircraft and value of benefits received, rather than through an allocation from the Air Transportation Tax. This system will replace the Air Transportation Tax. (Recommendation 5.7)

A decision to move to a link-by-link charge for the existing road system will be based, in part, on technological feasibility, administrative cost and public acceptability. Such a change will likely be gradual or come in stages, except for a limited number of new toll roads.

Specifically:

- Provincial and territorial governments will meet the costs of their highway system, and any agreed upon National Highway System projects within their borders, through fuel taxes and other charges. (Recommendation 6.6)

Making Investment Decisions

Investments will be made only in those projects in which benefits to travellers exceed costs, and that yield the highest level of benefits over costs, regardless of mode. In making investment decisions, all costs, including safety, accident and environmental costs, as well as interest on funds invested, will be taken into account. Adequate provision will be made for maintenance. New technologies will be considered along with existing technologies, and full consideration will be given to the potential for intermodal operations to contribute to efficiency and ease of travel.

Specifically:

- For transferring airports to Local Airport Authorities, the federal government's valuation of existing airport capital facilities will reflect the commercial potential of the facilities, not historical costs. (Recommendation 5.3)
- Governments or Local Airport Authorities will make airport investments on an airport-by-airport basis and will only make new airport investments where costs, including a return on investment, can be expected to be repaid through future revenues. (Recommendations 5.1 and 5.3)
- In determining the extent of restoration and upgrading of the national highway network, provincial and territorial governments will be guided by a comparison of benefits and costs on individual projects, rather than by uniform engineering standards. (Recommendation 6.4)

- Governments will invest in high-speed rail infrastructure only if the benefits to the passenger transportation system exceed the costs, and if taxpayers do not have to pay any operating subsidies. (Recommendation 12.6)
- Any railway company will be allowed to abandon any amount of track without a limit (see also Recommendation 6.9). (Recommendation 6.8)
- All responsible agencies, in evaluating safety improvements in different modes, will use comparable values for injury and loss of life. (Recommendation 8.2)

CHANGES FOR GOVERNMENTS

The Functions of Government

Governments will be responsible for establishing policies in relation to the framework, setting and enforcing standards, gathering and reporting information to the public, ensuring a sufficient level of research, maintaining competition and regulating monopolies.

(Recommendation 4.9)

Federal, provincial and territorial transportation departments will move towards being small policy-oriented departments. They will advise governments on policy with respect to government transportation agencies, establish guidelines for project evaluation, notably for the assignment of joint costs to modes and user classes, and will be responsible for taking a cross-modal view of transportation issues. To the extent that environmental and safety policies are tailored to transportation, rather than being of general application, transportation departments will be involved in the development of environmental and safety policies and charges with environmental and health authorities. The departments will shed most or all of their operating responsibilities outside of safety regulation.

Specifically:

- The federal government will transfer all remaining airports to Local Airport Authorities and/or to other types of local operators. (Recommendation 6.1)
- The federal government will convert the air navigation system from a departmental organization to either a Crown corporation or an independent institution. (Recommendation 6.2)
- Each provincial and territorial government will establish a Crown corporation, supplemented by an advisory group, to be responsible for providing roads more efficiently and making pricing and investment decisions more transparent. (Recommendation 6.3)

Government agencies might still be used to provide some carrier services and operate some infrastructure. They would, however, be expected to function without subsidies, and private-sector firms would in general be free to enter the market in competition with such government operators.

In carrying out their policy-making responsibilities, governments will take a long-term view. We expressed concern in our Interim Report, and do again in this report, about a possible loss of important railway corridors as railways streamline their operations and abandon track. Governments will ensure that valuable, irreplaceable corridors are not lost for future transportation use.

Specifically:

- Railway companies will offer abandoned rail rights-of-way, under a formal procedure, to governments and then to other railway companies before such rights-of-way can be converted to other uses. All levels of government will develop policies, based on explicit criteria, for deciding which corridors they wish to retain for future

transportation use and will ensure that land so acquired is maintained intact as a corridor.
(Recommendation 6.9)

The role of government as referee will be expanded, and governments will collect and publish improved data on the passenger transportation system.

Specifically:

- The federal government will review the *Competition Act* and related policy and, if required, will strengthen the powers needed to prevent anti-competitive practices in the intercity bus industry.
(Recommendation 13.2)
- The federal government will extend its regulations governing the anti-competitive practices of computer reservation systems beyond the air mode to take a multimodal approach.
(Recommendation 15.3)
- The federal government will establish the regulations under which any high-speed rail system will operate, including safety and environmental regulations.
(Recommendation 12.8)
- The National Transportation Agency will ensure that abandoned railway corridors are offered to governments or other railway companies at a reasonable price.
(Recommendation 6.9)
- The National Transportation Agency will take more active responsibility for ensuring that transportation services become more accessible to those with disabilities.
(Recommendation 9.4).
- The National Transportation Agency will establish minimum national standards of transportation accessibility for persons with disabilities.
(Recommendation 9.2)

- The National Transportation Agency will mediate disputes regarding the requirement for an attendant to accompany a traveller with a disability.
  (Recommendation 9.7)
- Provincial and territorial governments will implement more-uniform and adequate minimum accessibility standards for inter-city buses for travellers with disabilities, or, if that does not occur, the federal government will rescind its delegated responsibility for nationally applied accessibility standards to ensure more uniformity.
  (Recommendation 9.10)
- Governments will further develop travel and other transportation data for public use, and the federal government will publish an annual report card on the passenger transportation system.
  (Recommendations 16.2, 16.3 and 16.4)

Transferring operating functions from government departments to the private sector or independent agencies will considerably reduce government personnel and financial requirements. We expect that these functions will be carried out with fewer people and at lower cost than is currently the case. Small additional government resources might be required to carry out expanded refereeing functions and to collect improved data on the transportation system. In addition, as the bus industry is brought within the scope of competition review, the federal government may have to increase resources for competition policy. This increase, however, should be more than offset by reductions in the cost of provincial regulatory bureaucracies.

The Responsibilities of Levels of Government

Decision making authority of governments will be assigned to the level of government that is both closest to the people and most able to exercise such authority efficiently.

(Recommendation 4.10)

We asked ourselves whether achieving our framework will be possible under the current allocation of responsibilities among levels of government for the different modes.

We recognize that the policies of one level of government regarding a mode for which it is responsible can affect other modes that are the responsibility of another level of government. As long as the affected modes are paying their way, however, this type of interaction is not inherently a problem.

Given current jurisdictional arrangements, good will, cooperation and coordination among levels of government are essential to achieving comparable treatment of different modes. Our framework can be implemented using a cooperative approach, and within existing jurisdictional arrangements.

Specifically:

- A National Highway System will be identified by the Council of Ministers Responsible for Transportation and Highway Safety and will be operated and maintained through cooperative action of provincial and territorial governments and/or their road agencies. (Recommendation 6.5)

Local or regional governments will take policy responsibility for environmental damage when the source and effects are local. Similarly, the federal government will take responsibility when environmental damage from one region affects other regions or countries.

Specifically:

- Local and regional governments will address low-level ozone problems, focussing on ozone non-attainment areas, using special regional regulations such as speed limits, periodic motor-vehicle emissions testing, and emissions surcharges at times of the year when low-level ozone is a problem.
(Recommendation 7.1)

- The federal government will strive for international agreement on an effective strategy to control global warming, and will seek to harmonize domestic policies and taxes with those of the international community.
(Recommendation 7.2)

Treating the Modes Equally

Governments will tax and regulate all modes equally.

(Recommendation 4.11)

Governments will not treat the modes differently in terms of taxes, charges or regulations. Governments will collect taxes for general revenue purposes from all modes on the same basis, set charges to cover the efficient cost of providing services and facilities and use the revenues for that purpose, and apply charges and regulations equally to all modes to address the costs that transportation activities impose on society.

Specifically:

- All fuel taxes will be used for transportation purposes or as a means of charging for costs, such as environmental damage and health care system costs, caused by transportation.
(Recommendation 5.4)
- Governments will apply environmental emissions charges equally to all modes and to non-transportation sources, on as close to a per-unit-of-emission basis as practical.
(Recommendation 7.6)
- Governments will set regulations for the effective control of environmentally damaging emissions that impose similar obligations in terms of cost per unit of abatement on each mode, and that treat

non-transportation sources of pollutants similarly to transportation sources.
(Recommendation 7.3)

- Governments will separate revenues from environmental emission charges from revenues from other passenger transportation charges and use such funds to clean up the environmental damage, compensate those affected, or lower general tax rates. They will not use such funds to expand or maintain the passenger transportation system.
(Recommendation 7.7)

Improving Accountability and Transparency

Decision making will be transparent so that Canadians can understand why governments or their agencies make the passenger transportation choices they make, and so that those making decisions can be held accountable.

(Recommendation 4.12)

Those responsible for making and applying the rules and for spending travellers' and taxpayers' money will be more accountable for their actions. Governments will improve accountability by making relevant information available to the public and by making it easy to understand.

Specifically:

- If agencies that are established to manage transportation infrastructure are monopoly suppliers, the level of government responsible will ensure that advisory bodies of travellers and other interested parties are created to counsel management on investment priorities, charging mechanisms and the prices needed to achieve self-sufficiency.
(Recommendation 16.1)

- Governments will clearly report to the public the amount of, and reason for, any continuing subsidies to carriers.
(Recommendations 12.5, 14.4 and 16.4)
- Governments will make public the benefits and costs of any high-speed rail project in which they invest or subsidize and will consult the public on the implication of such investments.
(Recommendation 12.7)
- Government will allocate resources, and provincial and territorial governments will cooperate with the federal government to ensure the further improvement and collection of travel and other transportation data, and the data will be made available to the public.
(Recommendations 16.2 and 16.3)
- The federal government will publish an annual report card on the passenger transportation system that will include information on the use of the system, subsidies, extent of cost recovery, and degree to which objectives are being met, as well as information on the reliability and safety of the passenger transportation system.
(Recommendation 16.4)

TRANSITION REQUIREMENTS

In cases where time is required to ease the problems caused by steep price adjustments, or where a carrier, a particular carrier service, a terminal or a link is given another chance to survive within the new framework, financial assistance will be designed to encourage adjustment.

(Recommendation 4.13)

If a carrier, a particular carrier service, a terminal or a link cannot survive despite a reasonable period of time for adjustment, the terminal or link will be closed or the service discontinued.

(Recommendation 4.14)

Since the passenger transportation system that will result from our framework will differ from the current system, governments will give travellers, carriers and facility providers time to adjust. In this adjustment period, any remaining subsidy from the taxpayers will be:

- provided, where possible, to move people in the most efficient way, regardless of mode;
- provided and managed by the level of government that has responsibility for the mode in question;
- borne by taxpayers in the jurisdiction that makes the decision, not by other transportation users; and
- provided on a declining basis, for a reasonable adjustment period, and then terminated.

Even when they are given financial assistance and a reasonable time to adjust, some carriers or facilities might not be able to achieve commercial viability. In such cases, they will be closed down.

We recognize four cases in which governments may have to provide transitional subsidies.

Specifically, they are:

- *Airports:* Whenever applying our principles to airports, including all Transport Canada airports, will result in steep increases in average charges to travellers, governments will provide transitional subsidies to be phased out over 10 years. The initial level of subsidy will be based on the current operating subsidy and will be used for capital as well as operating expenditures or, if the airport is closed, for other local transportation purposes.
(Recommendation 5.2)
- *Passenger rail:* The federal government will enact legislation to give VIA Rail a mandate to operate on a commercial basis, with the general subsidy having a sunset provision of 10 years. During this

period, VIA Rail will have greater freedom to manage, including investment decisions, route selection, service levels and pricing; will be allowed to compete for other services such as commuter services and transporting mail; and will be required to file and publish detailed annual operating plans and financial reports, including the costs and revenues related to individual routes. At the end of 10 years, all routes will be unsubsidized (see also discussion of remote services later in this section). (Recommendations 12.1, 12.2, 12.3 and 12.4)

- *Intercity bus:* If necessary to avoid steep increases in bus fares on particular routes following the relaxation of economic regulation of the intercity bus industry, governments will provide transitional subsidies on a declining basis not to exceed 10 years. (Recommendation 13.3)

- *Ferries:* If necessary to avoid steep increases in fares, governments will provide transitional subsidies not to exceed 10 years on individual ferry routes (see also discussion of constitutionally provided ferry services later in this section). (Recommendation 14.1)

In some cases, governments might choose to continue subsidies to passenger transportation services that are not commercially viable. Such subsidies are not consistent with our framework and, in general, should not be maintained. If, however, governments continue to provide subsidies despite our recommendations, they will do so in such a way as to ensure that services are as efficient as possible. In addition, such subsidies will be provided from general tax revenues and not from charges to travellers.

Specifically with respect to:

- *Remote train service:* Governments may decide to continue providing passenger transportation service to some communities that currently have remote train service. In this case, governments will use the most efficient mode and carrier, and, if feasible, use competitive bidding to choose the mode and carrier. In addition,

governments will provide the subsidy in such a way that the subsidized carrier will bring passengers to transfer at the closest convenient point to a commercial, unsubsidized carrier. (Recommendation 12.5)

- *Constitutionally provided ferry services:* The federal government may use subsidies, if required, to maintain constitutionally guaranteed ferry services. Except for the ferry service between North Sydney, Nova Scotia, and Port aux Basques, Newfoundland, for which there is a constitutional limit on rates, continuing taxpayer subsidies to other ferry services will be no higher than required to maintain the service. In the case of the Nova Scotia to Newfoundland service, and any other constitutionally guaranteed services that require taxpayer subsidies to continue, the federal government will strive for the highest degree of cost recovery consistent with the constitutional obligations, and may offer the affected province a federal grant instead of the subsidy. (Recommendation 14.2)

MEETING OUR OBJECTIVES

In Chapter 4, we stated that the goal of the passenger transportation system should be to move people to where they want to go, and we proposed:

Four guiding objectives:

- **safety;**
- **protection of the environment;**
- **fairness to taxpayers, travellers and carriers; and**
- **efficiency, so that services are provided only where benefits to the individual traveller equal or exceed the cost, and given levels of service are provided at the lowest possible cost.**

(Recommendation 4.1)

We also concluded that:

Governments pursue nation-building and regional development objectives through other programs rather than using the passenger transportation system.

(Recommendation 4.2)

Our recommendations will create a passenger transportation system that is safe, that is more protective of the environment, that ensures fairness to taxpayers, travellers and carriers, and that operates more efficiently.

IMPROVING SAFETY

We are encouraged by long-term trends in transportation safety, which show impressive improvements in all modes. We also recognize that safety improvements demand innovation — new technologies and new attitudes and behaviour by carriers and travellers. Our framework encourages such innovation.

Government Regulations

Governments have been responsible for many safety improvements: in vehicles, by regulating vehicle performance; and in infrastructure, by adopting design standards. We recognize that such actions have generally been effective, and our framework reaffirms the role of government in maintaining the safety of the system through regulations. Our recommendations will strengthen the role of governments in providing objective analysis of accident trends and potential safety measures. Further, we have recommended that governments use comparable values for injury or loss of life for all modes when they establish regulations or invest directly in transportation infrastructure. This will help achieve a coordinated approach to safety among branches and levels of government.

Using Charges to Change Behaviour

The payments that carriers and travellers already make toward accident costs, either directly or through insurance systems, have provided strong incentives for personal and corporate improvements in safety and have contributed to overall long-term improvements. Currently, however, carriers and travellers do not pay all the costs associated with accidents and safety prevention programs. Under our framework, governments will encourage greater safety by:

- making the safety costs of transportation as transparent as possible;
- ensuring that travellers and carriers pay all the costs of accidents by having provincial and territorial health-insurance systems reclaim all costs of treating accident victims from companies insuring vehicles and carriers; and
- ensuring that travellers and carriers pay all prevention costs by charging travellers and carriers directly for the costs of government transportation safety programs, such as emergency rescue services, police traffic enforcement and the administrative costs of regulating safety. In addition, users will pay for the safety components built into infrastructure by means of appropriate pricing for such infrastructure.

Conclusions on Safety

We are convinced that when travellers and carriers face the full costs of accidents and safety programs, they will change their behaviour to reduce accidents. We also expect that the discipline involved in objectively assessing risks, evaluating safety measures, and providing accountability and transparency in setting charges will encourage governments to treat the modes with greater consistency, thereby getting the most safety improvement per dollar spent.

GREATER PROTECTION OF THE ENVIRONMENT

Efforts to protect and improve Canada's environment have moved forward on many fronts in recent years. Public support for environmental programs has grown, encouraging increases in government spending and the regulation of individual and corporate activities. In addition, governments have attempted to coordinate their activities through the Canadian Conference of Ministers of the Environment, and the federal government has cooperated with other countries in environmental protection.

Government Regulations

Under our framework, current regulatory controls will continue where they are cost-effective and will apply to all modes equally. Coordination among governments will be further improved by using common standards for environmental costs when evaluating regulations and investments in transportation infrastructure.

Using Charges to Change Behaviour

In a more radical addition to the current approach, our principles call for travellers, carriers and providers of infrastructure to pay the environmental costs of travel and transportation investments. Making the environmental consequences of transportation obvious through transparent charges will considerably improve the strength and consistency of efforts to protect the environment. Carriers and travellers will take environmental damage into account in a consistent way when making transportation decisions.

Carriers and travellers will make such decisions by applying the same benefit-cost test that governments will apply in their decisions on regulations and public investments — that is, they will ask "Is the benefit worth the cost?" Since carriers and travellers will be using a common set of valuations of environmental damages — the same set as used by governments in their environmental decisions — consistency and efficiency in achieving environmental goals will be

promoted. Governments will not need to predict where and how carriers and travellers should achieve reductions. The decisions can be left to users.

We are aware that the ability to measure environmental damage and assess its costs is limited and that (as in the case of other ill-defined risks) misperceptions of possible effects of preventive actions lead to a great range of public opinions — from indifference to strident demands for the strongest measures. We also recognize that political agreements on national goals might themselves be based on misperceptions. We argue strongly that governments ensure that the scientific evidence for environmental problems and solutions, and the most objective assessment of such evidence, be disseminated to the public as widely as possible.

Under our framework, governments will use revenues from environmental charges to clean up damage and to compensate those affected by such damage. Substantial surpluses, however, will remain. For example, governments will gain revenues from carbon dioxide (CO_2) emission charges, but it is unlikely that people at risk from global warming will be identified or compensated individually. Governments will use surplus environmental revenues to benefit all Canadians by reducing general taxes.

Conclusions on Protecting the Environment

We recommend that travellers and carriers pay the costs of the damage they impose on the environment. We base this recommendation in part on the belief that users are generally able to affect the amount of damage they cause by their choice of vehicle or amount and type of travel.

We also believe that environmental charges will make the passenger transportation system more fair by guaranteeing that users provide compensation to taxpayers for the environmental costs that their use of the passenger transportation system imposes. Those who travel less will not pay the environmental costs imposed by those who travel

more. Carriers and others who save money by using more-polluting vehicles will not gain an automatic competitive advantage over those who invest in pollution reduction. Travellers and carriers in the various modes will not be subject to different regulatory standards.

While our recommendations call for radical change, we believe they are rational, fair and will achieve national environmental goals efficiently and at a lower overall cost.

GREATER FAIRNESS TO TAXPAYERS, TRAVELLERS AND CARRIERS

Our recommendations are guided by the objective of fair treatment for all Canadians. In general, under our framework, transportation policy will be neutral in its treatment of individuals and identifiable groups of individuals, favouring none above others, and favouring no group identified by region or by shared activities. All Canadians will have access to the transportation system on the same terms.

Specifically:

- governments will remove any barriers that prevent "fit, willing and able" carriers from entering transportation markets and getting access to essential facilities;
- governments will not favour travellers over non-travellers by providing large subsidies to some travellers; and
- governments will treat carriers and travellers in different modes equally.

Special Circumstances

We recognize three special circumstances in applying these general rules of fairness:

- *People with disabilities:* Under our framework, travellers with physical or mental disabilities will have opportunities to use public passenger transportation that are similar to those enjoyed by all

Canadians. Carriers will make a sufficient proportion of their new intercity transportation vehicles accessible to people with disabilities, and will ensure that travellers with disabilities are treated with sensitivity and understanding.

- *Constitutionally provided ferry services:* The federal government is obliged under the Constitution to assume responsibility for certain ferry services and, in one case, to maintain a limit on rates. Governments will apply our recommendations on the management of infrastructure, and may institute competitive tendering to carriers for these ferry services. The result will be services provided in as cost-effective a manner as possible, thus reducing the amount of taxpayer support required.

- *Certain non-viable facilities and services:* There may be circumstances in which governments decide that a commercially non-viable transportation facility or service should be provided or guaranteed. Again, governments will apply our recommendations on the management of facilities, and may institute public competitive tendering to carriers for these facilities and services. This will reduce subsidies.

Eliminating Subsidies

In general, subsidies from taxpayers and transportation users to certain groups of travellers are unfair — for example, air travellers being supported by non-travellers for the costs of air navigation systems and airport expenses or train travellers being supported by direct subsidies from taxpayers for their ticket. This unfairness is compounded by its effect on travel behaviour. Subsidies from taxpayers make some transportation services cheaper, encouraging travellers to use them more and — to the extent that the subsidy is above the average for transportation — causing travellers to switch from other modes. Such subsidies to one mode are unfair to other modes that could offer competing services.

The remedy is straightforward. Under our framework, carriers, and ultimately travellers, will pay all of the costs of infrastructure and services. This remedy will also apply to those modes that receive large

subsidies — passenger train services and those ferry services for which there are no constitutional obligations. For example, our estimates show that passenger train services receive payments from taxpayers far in excess of fares received from travellers, while the public gains little if anything in terms of environmental improvement from these large expenditures. Such subsidized train services also compete unfairly with services provided by other modes, particularly intercity bus carriers.

Appropriate charges for environmental damage will also make the transportation system more fair than it is at present, even where there are no simple administrative systems for identifying those who bear the damage and for providing them with compensation. Where the evidence shows that the environmental damage differs substantially by region, as is the case with low-level ozone, and if feasible administratively, it would be fairer to differentiate the charges by region.

Conclusions on Fairness

Under our framework, the goal of the passenger transportation system is to move people to where they want to go. Taxpayers should not be required to support one mode when a cheaper mode is available. Such support is unfair to taxpayers and to the operators and users of the other modes.

A MORE EFFICIENT TRANSPORTATION SYSTEM

Competition and Innovation

The passenger transportation system will be made more efficient, delivering better service at lower costs, through reforms in management, pricing policies and investment decision making.

We are convinced that competition will spur innovation. Our recommendations, therefore, introduce competition wherever possible: competition among modes, among carriers within modes and, where relevant, among providers of facilities. For example, improving ease

of entry by bus carriers will reduce costs and fares, improve services on trunk routes and allow lower-cost operations to offer new services to smaller communities. Ensuring that competing carriers get access to air and bus terminals, train stations and computer reservation systems will encourage innovation and cost-cutting, to the benefit of all travellers.

In addition, our recommendations on the transparency of the budgeting processes of agencies, and on advisory roles for users of infrastructure provided by agencies, will encourage providers of infrastructure that are not subject to much direct competition to continually seek innovations that improve service and lower costs.

Commercialization of Services

Putting transportation infrastructure and carriers on a more commercial basis will lower costs and improve services to carriers. For example, commercialization of air navigation services will free management to pursue innovation and improved efficiency.

For constitutionally guaranteed ferry services and for any remote train services that governments judge to require continuing taxpayer support, tendering by open contracts will allow competing operations to demonstrate their efficiency. It will also provide travellers and taxpayers with the best service at the least cost.

Pricing and Investment

Requiring travellers to pay the full costs of their travel and removing taxpayer subsidies are important components of our proposals for efficiency. Equal treatment of modes and carriers means that users pay prices that represent the true costs of services, with no hidden contribution from others such as taxpayers and victims of environmental damage.

Our recommendations for pricing and investment are intended to achieve efficiency in the transportation system. Carriers and infrastructure providers will design efficient pricing systems, subject to

the requirement that they recover all costs. With appropriate pricing in place, travellers and carriers will make decisions that maximize the benefits from travelling. Similarly, consideration of social costs and benefits, without regard to mode and jurisdictional limits, will guide agencies in setting priorities for investments in public transportation infrastructure.

Conclusions on Efficiency

As we have emphasized throughout this report, efficiency is achieved whenever Canadians make the most of the resources that are devoted to transportation, and devote the amount of resources to transportation that wastes neither opportunities nor money. An efficient transportation system is one that contributes the most to Canadians' standard of living.

Reaching Our Destination

No one can predict the future with any accuracy. In looking ahead, we see many changes that could affect intercity passenger transportation. For example, the environmental costs of transportation-related pollutants may prove substantially higher or lower than currently estimated, public demand may shift toward the train or the bus, and new technology may expand road capacity, reduce the environmental costs of car use, and make air travel cheaper. The possibilities for change are infinite.

What we set out to do was to develop principles under which travellers, carriers and governments will achieve what we believe are widely held objectives in a broad range of circumstances. Our principles will ensure a framework in which costs are reflected in prices paid by travellers, and institutions are flexible and responsive. This framework will constrain transportation activities that become too costly relative to benefits provided, and will encourage the transportation industry to take advantage of new opportunities resulting from improved technology and other favourable developments.

APPENDIX A

ORDER IN COUNCIL

P.C. 1989-2096

CANADA

PRIVY COUNCIL

Certified to be a true copy of a Minute of a Meeting of the Committee of the Privy Council, approved by Her Excellency the Governor General on the 19th day of October, 1989.

The Committee of the Privy Council, on the recommendation of the Prime Minister, advise that a Commission do issue under Part I of the Inquiries Act and under the Great Seal of Canada appointing:

Louis Davies Hyndman of Edmonton, Alberta
Marie-Josée Drouin of Montreal, Quebec
Susan A. Fish of Toronto, Ontario
Marc Gaudry of Montreal, Quebec
William P. Kelly, C.M., of Ottawa, Ontario
John B. Hamilton, Q.C. of Toronto, Ontario
John Forbes Helliwell of Vancouver, British Columbia
James D. McNiven of Halifax, Nova Scotia
Dr. Maurice LeClair, O.C., M.D., of Westmount, Quebec

together with such other persons as may be named from time to time, to inquire into and report upon a national integrated inter-city passenger transportation system to meet the needs of Canada and Canadians in the 21st century and to ensure that transportation links among Canada's regions and communities are maintained and improved; and

The Committee also advise that the study include an examination of

(a) the role of a national integrated inter-city passenger transportation system, in the context of

- the relationship of the inter-city passenger system with the whole transportation system;
- the current extent and state of Canada's inter-city passenger transportation system;
- demographic and population trends;
- social trends and user preferences;
- technological developments in the transportation industry;
- international transportation developments and how they could impact on Canada's competitiveness;
- the economic prospects for the Canadian economy and their likely impact on inter-city passenger transportation requirements;
- the mobility needs of Canadians;

...2

(b) the structure of a national integrated inter-city passenger transportation system for transportation by air, marine, highway and rail and the relations among the modes, taking into account

- the means to encourage Canadians to travel within Canada;
- the appropriate mix among the various modes so as to maximize the effectiveness, efficiency and competitiveness of the system;
- the financial implications of such a system, including initial capital requirements as well as the cost of maintaining and operating the system;
- the promotion of energy efficient means of transportation;
- the environmental impact of various options in order to achieve a balance between the environmental impact and the transportation needs of Canadians;

(c) the potential for and the constraints on achieving a national integrated inter-city passenger transportation system by

- advising on the institutional arrangements required, including any arrangements needed to rationalize and coordinate the respective roles of the three levels of government in Canada in the provision of inter-city passenger transportation services;
- examining the relevant labour relations environment;
- assessing the transportation industry-government interface;

.../3

(d) the appropriate financial arrangements to achieve a national integrated inter-city passenger transportation system by

- taking into account the jurisdictions of the different levels of government and the role of the private sector;
- taking into account the overall cost to Canadians;
- considering the concept of appropriate user shares;
- examining means of attracting private financing to major transportation projects; and

The Committee also advise that the Commissioners

(1) be authorized to adopt such procedures and methods as they may from time to time deem expedient for the proper conduct of the inquiry and to sit at such times and in such places as may be required;

(2) be authorized to rent such space and facilities as may be required for the purposes of the inquiry, in accordance with Treasury Board policies;

(3) be authorized to engage the services of such experts and other persons as are referred to in section 11 of the Inquiries Act, at such rates of remuneration and reimbursement as may be approved by the Treasury Board;

(4) be directed, within the ambit of their work, to seek the views of all provincial and territorial governments as well as interested Canadians from all walks of life and all regions of the country;

(5) be directed to submit an interim report to the Governor in Council in both official languages not later than eighteen months from now;

(6) be directed to submit a final report to the Governor in Council in both official languages with all reasonable dispatch but no more than three years from now;

.../4

(7) be directed to file the records and papers of the inquiry as soon as reasonably may be after the conclusion of the inquiry with the Clerk of the Privy Council; and

The Committee also advise that Louis Davies Hyndman of Edmonton, Alberta, and Marie-Josée Drouin of Montreal, Quebec, be the Chairman and Vice-Chairman respectively of the Commission; and

The Committee further advise that Janet Smith of Ottawa, Ontario, be appointed Executive Director of the Commission.

CERTIFIED TO BE A TRUE COPY - COPIE CERTIFIÉE CONFORME

CLERK OF THE PRIVY COUNCIL - LE GREFFIER DU CONSEIL PRIVÉ

APPENDIX B

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JUN 9 1993